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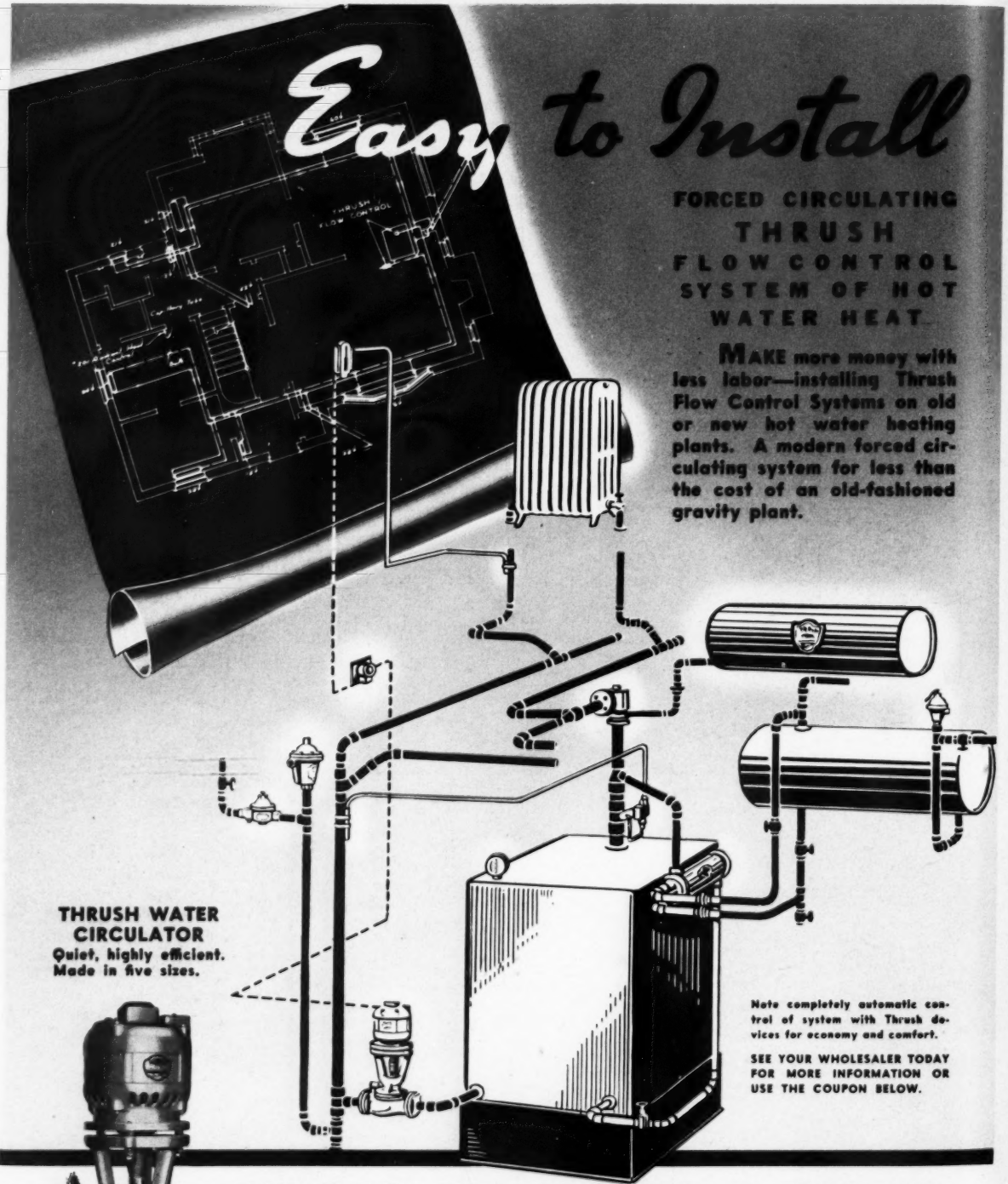
DOMESTIC ENGINEERING

Plumbing & Heating Contracting and Merchandising

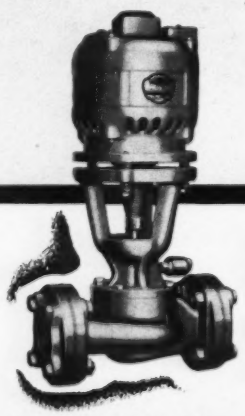
Easy to Install

FORCED CIRCULATING THRUSH FLOW CONTROL SYSTEM OF HOT WATER HEAT

MAKE more money with less labor—installing Thrush Flow Control Systems on old or new hot water heating plants. A modern forced circulating system for less than the cost of an old-fashioned gravity plant.



THRUSH WATER CIRCULATOR
Quiet, highly efficient. Made in five sizes.



Note completely automatic control of system with Thrush devices for economy and comfort.

SEE YOUR WHOLESALER TODAY FOR MORE INFORMATION OR USE THE COUPON BELOW.

MAIL NOW!

H. A. THRUSH & CO., PERU, IND.

Box 459 We are interested in Thrush Flow Control System of Hot Water Heating and Thrush Water Circulators.

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ADDRESS .....

CITY..... STATE.....

H.A.THRUSH & CO. PERU, INDIANA

Remember...

THERE ARE 4 VOGEL PATENTED FROST-PROOF CLOSETS—

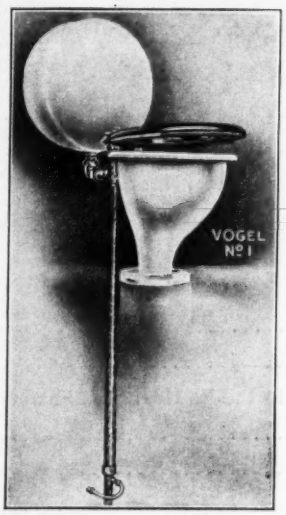
and Cold Weather is on the Way

The **VOGEL** line of Frost-Proof Closets has been built to meet every possible requirement—of Type, of Price, or of Both. From the **VOGEL** Number 2 to the **VOGEL** Number 15 there are four types from which you can select the one that is *right* for any particular installation.

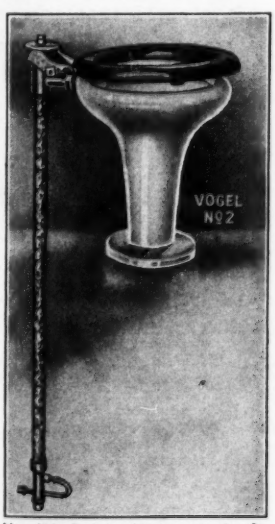
It will pay you to remember the complete **VOGEL** Frost-Proof line. Backed by a 30-year reputation for durability and economical, trouble-free operation under severe service conditions, you are assured of satisfaction for your customers—and profitable business for yourself.

Sold only through wholesalers of plumbing supplies.

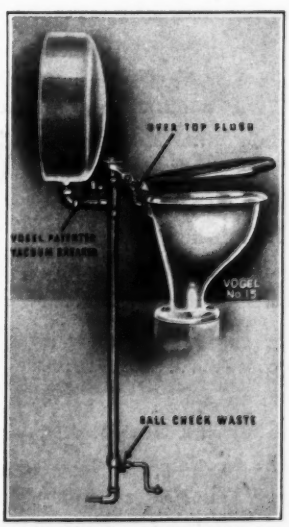
JOSEPH A. VOGEL COMPANY, *Wilmington, Delaware*



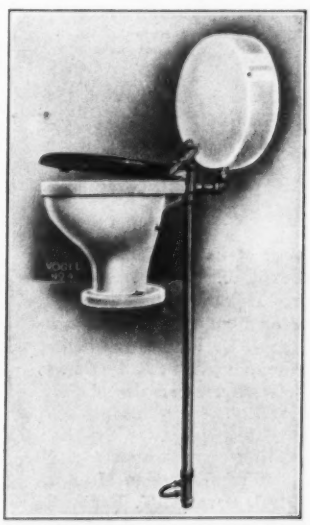
Vogel No. 1. More than 600,000 in use in all parts of the country. Cannot freeze, no matter how cold the weather.



Vogel No. 2. A durable, low-priced outfit. Supplied with enameled rim hopper and reinforced hardwood seat.



Vogel No. 15. Frost-proof closet with over-top flush, Vogel Patented Vacuum Breaker and Ball Check Waste. Can be furnished with either enameled iron or vitreous china bowl.



Vogel No. 4. China bowl, top supply. Same valve as Vogel No. 1. As good looking as a bathroom closet.

VOGEL PATENTED Frost-Proof Products

DOMESTIC ENGINEERING

Plumbing & Heating Contracting and Merchandising

October, 1939

Vol. 154, No. 4

Whole No. 2068

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Contents

Between Ourselves 40
Our Industry—Here Are the Answers 47
How Will the War Affect US 48
What Is a Contractor 54
What Is a Manufacturer 56
What Is a Wholesaler 58
What Is a Sticker Law 60
What Is a Journeyman 62
What Is an Apprentice 64
What Is an Inspector 66
What Is Relation of Plumbing and Heating to Public Health and Safety 68
Historical Parallels 70
What Tragedies Have Come 74
What Is an Auxiliary 76
What Is a Laboratory 78
What Is Merchandising 80
What Is a Cross Connection 82
What Is a Contractors' Association 84
What Is a Manufacturers' Association 86
What Is a Wholesalers' Association 88
What Is the Bureau 90
Values Are Up—Prices Down 92
Why Established Channels 98
What Is a Plumbing Code 100
Our Family Album 102
News of Plumbing and Heating Contractor-Dealers 104
Obituaries 116
Convention Dates 116
New Contractor-Dealers 116
Women's Section 117
News of Wholesalers and Manufacturers 118
Business on Parade 128
New and Improved Products and Equipment 130
New Information and Sales Helps 137
New Ideas in Patents 141
Classified Advertising 155
Index to Advertisers 156

HOUND'S TOOTH CLEANNESS

SELLS STASCO SANISEAL

THESE FEATURES KEEP STASCO SANISEAL SEATS "CLEAN AS A HOUND'S TOOTH"

Stasco Saniseal Seats are clean because they're built to *keep dirt out!* The seamless molded core will not warp or split. The hard, durable coating of seamless pyroxylin will not crack, chip, craze or peel. How different from the wooden seats whose joints may open up with age and whose painted or sheet-covered surfaces lack the sanitary protection afforded by Stasco Saniseal Seats.

Pure Seamless Pyroxylin finish, double thick at all edges . . . Soft inner molded core for resiliency . . . Molded, one-piece core with no joints to come apart.

STASCO WIZARD—Sheet pearl finish—Molded core—Reasonably priced.

STASCO EBONITE—Hard rubber composition—Industrial seats.

STASCO SNO-WHITE—Seamless finish—Molded core—Low priced.

In the one-piece Stasco Saniseal Seats, the germs of dread social diseases can find no lodging place in which to breed. Help us to fight America's No. 1 disease, by installing germ-proof Stasco Saniseal Seats.

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FROM AUTOMATIC HEATING

When you're a G-E Dealer—you've got something to sell. And now—at a *better* profit than ever before! The famous G-E Oil Burner—a new line of G-E Oil Furnaces—the New G-E Winter Air Conditioner. *All at new low prices!*

When you're a G-E Dealer—you don't sell price alone. You sell a name that's known and accepted by millions of home owners. You sell a quality that's unquestioned. Greater comfort, convenience, safety. Real economy and satisfaction.

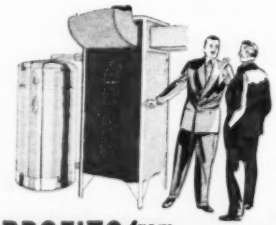
And—when you're a G-E Franchised Dealer—you've got an automatic heating product for *every* type of heat, for *every* prospect, for *every* purse.

You're building a business for immediate and future profits—for your very own success and security.

PROFITS from radiator heat. Now—*new* G-E Oil Furnaces at new low prices too! *Now you can sell the finest Oil Furnace G-E has ever made—at no more than the cost of ordinary automatic heat.* And—at a better profit than ever before!

PROFITS from warm air heat. G-E announces *new low price* on the *new* G-E Oil Winter Air Conditioner too! Abundant heat at low cost—*plus winter air conditioning:* humidifying, filtering and circulating of warm air, if desired.

PROFITS from any system.



PROFITS from split systems.

PRICED TO SELL FOR PROFITS!

TEN EXCLUSIVE G-E FEATURES

1. **G-E FUEL-SAVING NOZZLE**—Oil is mixed thoroughly with air *before* it enters the combustion chamber, then re-mixed, giving complete atomization—*more heat from less oil.*

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3. **G-E NON-CLOGGING BURNER TIP**—Famous G-E low-pressure method permits an opening 100 times larger than found in ordinary burners. *Prevents clogging, saves trouble and wear.*

4. **G-E QUICK-ACTING FLAME DETECTOR**—Permits continued oil flow only when combustion is established. *Operates 10 times faster than ordinary controls!*

5. **G-E POSITIVE MASTER CONTROL**—Same "brains" as in G-E Oil Furnace. Controls operation of entire burner. *Reliable!*

6. **G-E SELF-OILING MECHANISM**—This new and revolutionary G-E Oil Burner even oils itself—with fuel oil. *Long life.*

7. **G-E BALANCED OIL-FLOW STABILIZER**—Stabilizes combustion efficiency, regardless of possible variations in temperature, grade of oil or source of supply. *Far more economy—greater efficiency.*

8. **G-E AUTOMATIC SAFETY LIMIT CONTROLS**—Safeguard against excessive temperature or pressure. *Fully automatic, safe operation!*

9. **G-E RELIABLE MOTOR-COMPRESSOR UNIT**—Maintains an unvarying flow of air and oil. *It is quiet, safe, dependable.*

10. **G-E INGENIOUS TWO-TRY RE-START**—Should the burner shut down, this control attempts to restart twice. *Fully automatic.*

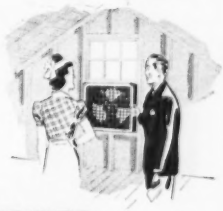
G-E is ready to talk..

DEALER PROFITS!

PROFITS FROM COOLING AND AIR CONDITIONING

PROFITS from home summer cooling. From small units for cooling one room to systems for cooling the whole house. Can be sold for use in conjunction with or without winter air conditioning. After the heating season—a logical market for profits.

PROFITS from commercial air conditioning. From individual store and office cooling units to complete central plant cooling for stores, shops, hotels, theatres, etc. Also a complete line of G-E Condensing Units—from fractional h.p. up to 100 h.p.



PROFITS from air circulators. A "natural" for lower income homes—cool comfort at low cost. For homes, offices, stores, shops and factories. All types use the unique G-E Aphonic Fan for unusual quietness and efficiency!

PROFITS FROM COMPLETE LINES—
REACH ALL PROSPECTS—ALL THE YEAR 'ROUND

OFITS the year 'round! company, one high standard quality, one source for all ucts. Complete lines that per- selling *every* prospect *every* th in the year. With G-E you out the pits and peaks—for round turnover and profit!

PROFITS from advertising. You benefit by the public acceptance of all G-E products. And—by leads from national magazine and cooperative newspaper advertising of *your* products, in *your* territory, reaching *your* prospects, to build *your* success.

PROFITS from the finest dealer support. If it helps you to do more business—G-E has it for you! Direct mail—store identification—displays—consumer literature—specification sheets—mats and electros—the best of everything.

NOW, AS NEVER BEFORE—a G-E Dealer Franchise offers you an opportunity to build a substantial, successful business—for life long security.

With *complete* lines to reach all prospects every month in the year. With products from *one* reputable source, bearing *one* famous name and *one* unfailing responsibility. With G-E's sales and engineering skill at your elbow to help you build success.

You, with keen eyes on the future, will want to know more about a G-E Dealer Franchise. Let us give you all the facts and figures.

GENERAL ELECTRIC

Automatic Heating, Cooling and Air Conditioning

GENERAL ELECTRIC COMPANY
Div. 190-616, Bloomfield, New Jersey
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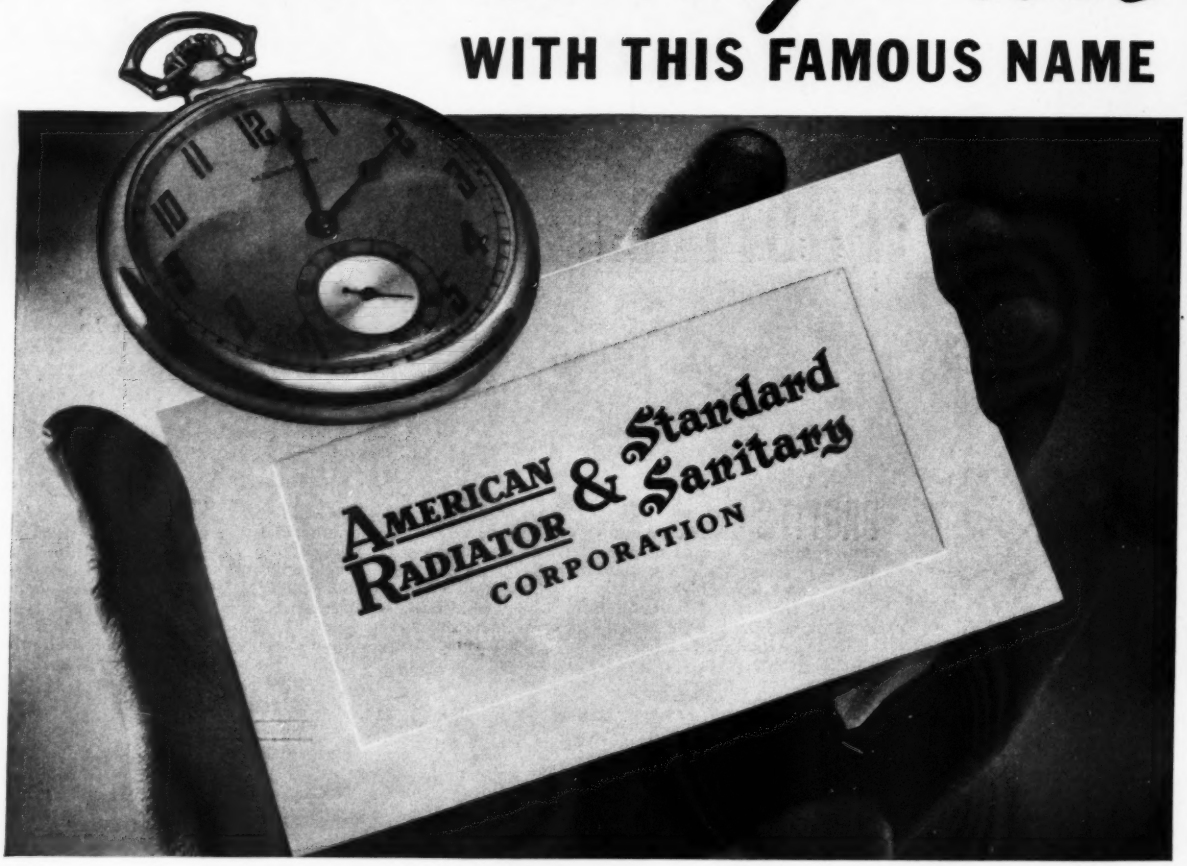
FILL IN AND MAIL COUPON TODAY

Save Selling Time

WITH THIS FAMOUS NAME



The Ideal Boiler No. 7 — One of America's most popular low-cost boilers for small and average size homes. Practical for Oil, Stoker, or hand-fired Coal operation. Famous for efficiency, dependability and beauty.

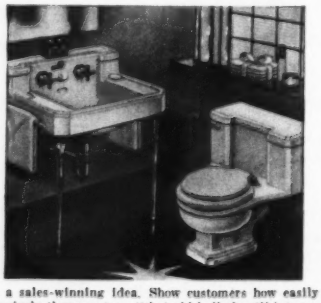
AMERICAN HEATING EQUIPMENT
COST NO MORE THAN OTHERS
"Standard" PLUMBING FIXTURES

YOU don't have to use time and effort "selling" quality and dependability when you recommend products bearing the famous name American Radiator & Standard Sanitary Corporation. For people know this name and rely on it as meaning the best in heating and plumbing. It actually *stimulates sales* and helps to close them! Backed by the undivided responsibility of one great organization you can answer any need and meet all price requirements with the complete line of AMERICAN Heating Equipment and "Standard" Plumbing Fixtures.

And you can get these products without delay, when you want them, from scores of warehouses and hundreds of Wholesale Distributors. The simple, sales stimulating payment plan of our Heating and Plumbing Finance Corp., helps you close more modernization sales and brings you quick cash.

So write for full facts today, or consult your Wholesale Distributor.

Visit our exhibits at the New York World's Fair and Golden Gate Exposition.



Here's a sales-winning idea. Show customers how easily and inexpensively they can turn "that old hall closet" into a smart, compact powder room with the "Standard" Companion Lavatory (F-115-GT) and the "Standard" Master One-Piece Closet (F-2000-A).

AMERICAN RADIATOR & Standard Sanitary CORPORATION

NEW YORK PITTSBURGH

Boilers & Furnaces for Coal, Oil, Gas • Radiators • Plumbing Fixtures & Fittings • Air Conditioners
Coal & Gas Water Heaters • Copper Pipe & Fittings • Oil Burners • Heating Accessories.

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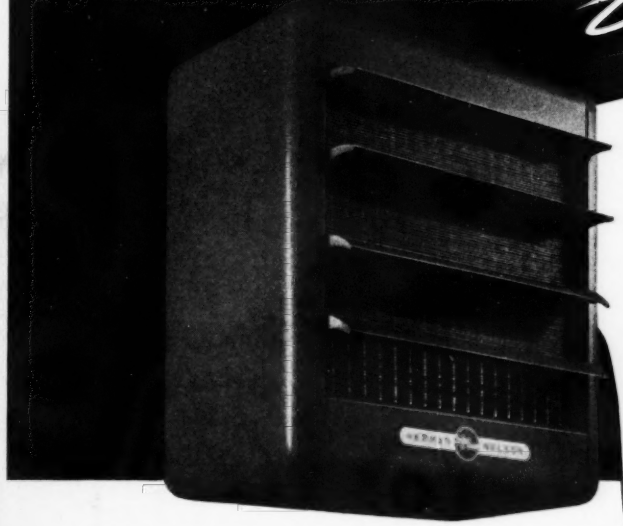
Owners acclaim quiet operation



THE NEW HERMAN NELSON **hiJet** HEATER

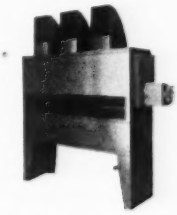
Herman Nelson's Advanced Design provides most quiet, efficient operation

Enthusiastic owners in all parts of the country praise the quiet operation of New Herman Nelson Propeller-Fan Type hiJet Heaters. This efficient, quiet operation is possible only because each part of the New hiJet has been especially designed for the duty it has to perform.

Blades of the New hiJet fan have an extremely wide face area and are of aerodynamic or streamline shape, resulting in a gradual "boosting" of the air in a continuous flow to the outlet. This fan design, together with streamlined air inlet, reduces noise to the minimum consistent with capacity and results delivered. In addition, less power is used for quantity of air handled.

The complete line of Herman Nelson hiJet Heaters is the result of more than 30 years of experience in the design and manufacture of heating, ventilating and air conditioning equipment. This important background, together with constant research, engineering skill and modern manufacturing methods, makes possible the superior results provided by Herman Nelson hiJet Heaters.

The Herman Nelson Blower-Fan Type hiJet Heater



The Herman Nelson Blower-Fan Type hiJet Heater is a large capacity unit for the efficient and economical heating of large spaces. Available in 16 different models and complete range of capacities.

Write for Catalog containing complete engineering data.

hiJet HEATER

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New York City
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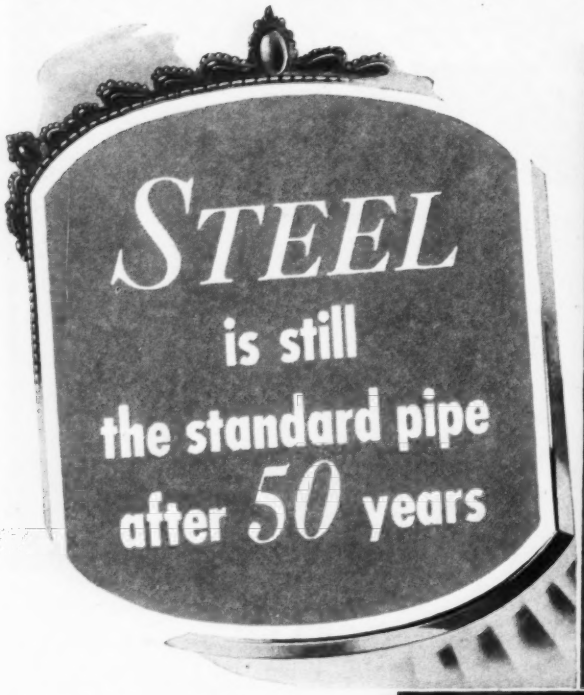
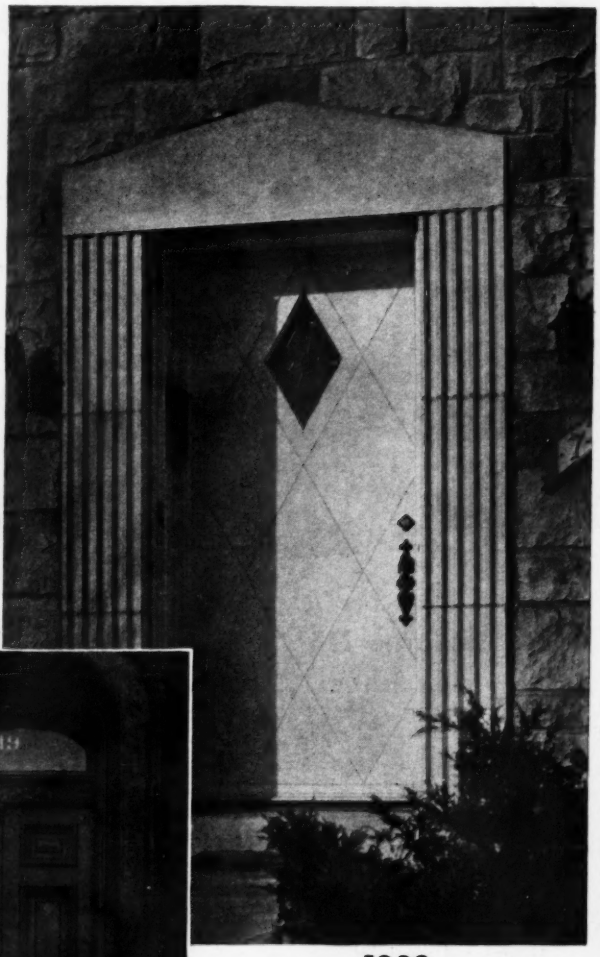
Come in and See for Yourself!





1939

1889

IF you were to walk through these two doorways and inspect the design and construction features of each home, you would see a marked contrast between building practice in 1889 and 1939. New methods, new finishes, and new equipment have indeed wrought amazing improvements in the last half-century, yet in most cases, the basic materials are still the same. Steel pipe, for instance, is today just as practical and just as indispensable as it was 50 years ago.

Naturally, steel pipe has itself undergone important changes since 1889. Is it now more uniform, free of scale, and more resistant to corrosion. But it is still fundamentally the same strong, dependable pipe that earned the respect of the building profession 50 years ago. For plumbing and heating and general purposes in residential, commercial, and industrial buildings, steel pipe is still the best all-round investment. That's why there is today more steel pipe in building service and more going into service, than all other types of pipe combined.

To give your customers the most service per dollar of cost, suggest that they specify NATIONAL Steel Pipe, made by the world's largest manufacturer of tubular products.

NATIONAL Pipe is used everywhere by wide-awake and efficient plumbing and heating contractors.

NATIONAL TUBE COMPANY

PITTSBURGH, PA.

Columbia Steel Company, San Francisco, *Pacific Coast Distributors* · United States Steel Products Company, New York, *Export Distributors*

UNITED STATES STEEL

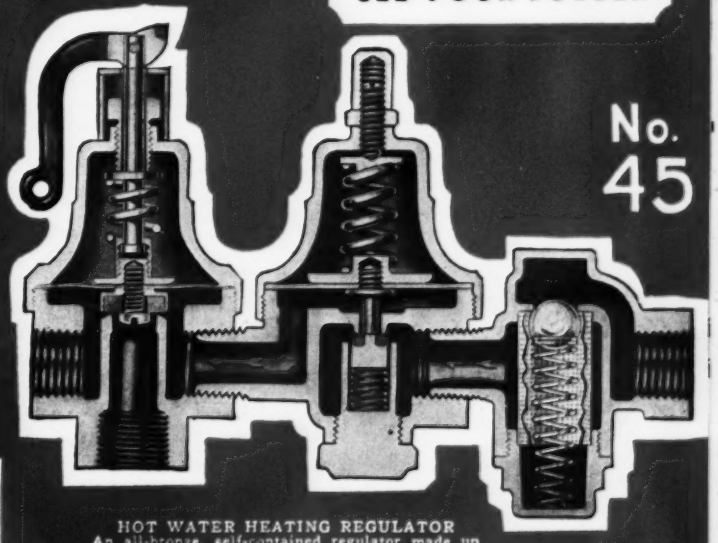
POSITIVE ACTION

IMPROVED CONNECTORS TO MAKE SIMPLE INSTALLATION IN GAUGE GLASS TAPPINGS.
No. 89
DIRECT FLOAT ACTION PRINCIPLE ALWAYS USED IN WATTS CUT-OFFS, ACTS ON MAGNETIC PRINCIPLE SWITCH.
HIGH QUALITY COPPER FLOAT INSURES LONG LIFE — PROPER BUOYANCY.
DRAIN VALVE PROVIDES MEANS TO FLUSH OUT FLOAT CHAMBER TO ASSURE PROPER OPERATION.

WATTS No. 89
LOW WATER CUT-OFF

. . . outstanding value of the year. The most advanced, and perfected low water control on the market. Note its many advanced engineering features . . . features that are of vital importance to any interested buyer to assure the maximum benefits in service that it is designed to give. Understand, too, that it costs NO MORE TO BUY.

SEE YOUR JOBBER



HOT WATER HEATING REGULATOR
An all-bronze, self-contained regulator made up with the same strainer and relief valve as No. 38 but with a smaller regulator of different design. A popular priced unit of quality.

• A SIGN OF QUALITY • A SIGN OF THE TIMES •

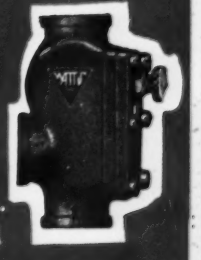
Fifteen years ago the Watts Regulator Co. celebrated ***its fiftieth year of manufacture;*** sixty-five history making years in the Plumbing and Heating industries. From the beginning Watts has held ***leadership;*** has been the ***pioneer*** in ***product and design.*** Watts was ***first*** with the fully automatic excessive temperature and pressure relief valve and ***first*** in numerous other products and improvements. Today the Watts ***line*** stands ***supreme*** in its complete up-to-dateness; in its diversity and engineering efficiency. For the ***last word;*** the ***greatest value*** in Protective Devices . . . ***specify and install a Watts product.***

No. 30L

DIAPHRAGM TYPE PRESSURE RELIEF VALVE
All bronze with flexible monel metal diaphragm.

No. 530C

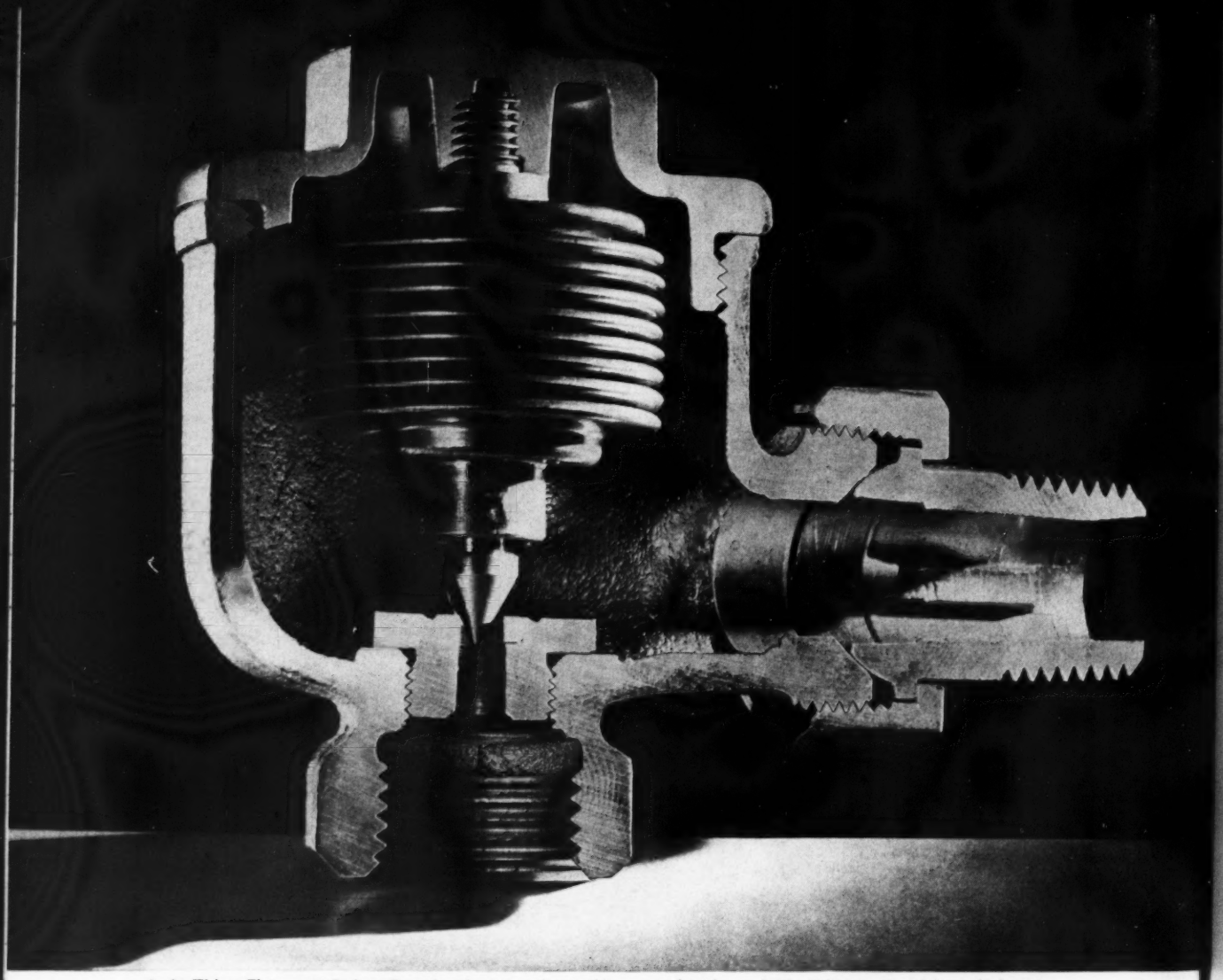
CALIBRATED RELIEF VALVE
All bronze calibrated pressure, relief valve. Wide adjustable range.



No. 73

CIRCULATION TEMPERATURE CONTROLLER
Acts as a mixing valve on indirect heater installations by regulating water temperature. Helps to prevent liming conditions.

WATTS
REGULATOR COMPANY
Lawrence, Mass.



In this Webster Thermostatic Radiator Trap, the valve piece and renewable seat are of stainless steel. The 60-degree cone and sharp-edged seat insure dirt-free operation. The operating member consists of a *genuine* Sylphon Bellows with *concentric* folds . . . formed with its lower portion integral . . . fully compensated for pressure throughout the operating range. Forged nut. Nipple turned from solid brass.

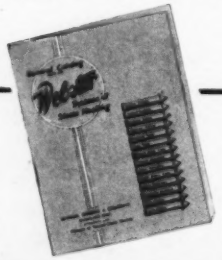
"—more than five million"

More Webster Sylphon Traps have been made and installed than any other type trap . . . The Sylphon Bellows feature was first introduced into Webster thermostatic trap manufacture almost thirty years ago. Since that time more than five million Webster Sylphon Traps have gone into service in Webster Systems of Steam Heating.

Today, the Webster Sylphon Trap reflects the lessons of experience in an up-to-date design . . . You will find it specified where quality comes first. The Webster Sylphon Trap illustrated is but one of a number of Webster Thermostatic Traps and other devices . . . All have the same objective —heating economy both in first cost and in annual operating cost.

Webster equipment includes Traps of all types, Radiator Supply Valves, concealed Webster System Radiators and Webster Moderator and Hylo central heating controls—all combined in Webster Systems of Steam Heating. Webster Service is available through Representatives in 60 U. S. cities. Consult local telephone directory or address:

WARREN WEBSTER & COMPANY, CAMDEN, N. J.
Pioneers of the Vacuum System of Steam Heating :: Est. 1888
Representatives in 60 principal cities : : Darling Bros., Ltd., Montreal, Canada



The new 1939-40 General Catalog will soon be off the press. It illustrates and describes almost all the items used in Webster Systems of Steam Heating. Write for your copy today.

-since 1888
Webster
Systems of
Steam Heating

Where the first Webster Vacuum Feed-Water Heaters and Vacuum Systems of Steam Heating were manufactured.

FIFTY YEARS OF PROGRESS IN STEAM HEATING

FIFTY years ago, there wasn't a golf course in all America!

Fifty years ago—

In New York City, an impetuous youth named Theodore Roosevelt ran third in the mayoralty election.

In Detroit, rocky wasteland marked the future locations of the great automobile factories.

In Tulsa, Oklahoma—there was no Tulsa, Oklahoma!

In Washington, Grover Cleveland was President of the United States . . . the proposed establishment of a Federal Department of Agriculture was called dangerous class legislation . . . there was an embarrassing annual surplus in the accounts of the U. S. Treasury!

In 1888,—fifty years ago—Warren Webster & Company started business in a small building where the first Webster Feed-Water Heaters and Webster Vacuum Systems of Steam Heating were manufactured.

As pioneers of the Vacuum System of Steam Heating, Warren Webster & Company replaced crude, hit-or-miss efforts with positive, ample heat; turned wasted exhaust steam to the service of industry; gave new impetus and life to the Heating Industry.

In the years that have followed, the efforts of the Webster organization have been devoted to the development of this new principle in steam heating. Webster Service was constantly available to determine the proper Webster System Equipment for each installation from a complete line of tested and proven appliances. For heating comfort and economy, thousands of building owners selected Webster Systems of Steam Heating.

In 1928, Warren Webster & Company introduced the Webster Moderator System and provided a new high level in heating service. Each year since then has seen wider recognition of the effectiveness of centrally controlled orificed steam heating, more installations converted to Moderator Control, more specifications calling for central control and orificing in new buildings.

TODAY—fifty years after that modest beginning in 1888—Webster is the best known name in steam heating. Webster's position in the Heating Industry today is the result of fifty years of constant progress plus the work of a national organization of steam heating specialists in securing correct application of steam heating systems in more than 70,000 buildings.

WARREN WEBSTER & COMPANY, CAMDEN N. J.

Illustration below shows Factory and [illegible]

To the publishers of Domestic Engineering:
And now you are 50
In this 50th Anniversary issue of Domestic Engineering, you have made your report on fifty years of service to the heating, plumbing and air conditioning industry.
On this occasion, we want to share with you and your readers the story of our first fifty years in business—1888 to 1938.

HOW TO MAKE MORE MONEY ON FLUSH VALVE JOBS

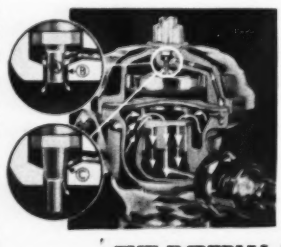
without increasing your selling price

Here are 3 WAYS in which WATROUS FLUSH VALVES reduce your installation costs —

ON the surface it would appear that all flush valves would cost about the same to install. There are the same number of connections to be made—the same amount of piping to be done—regardless of the make of valve used.

But master plumbers know that this does not tell the whole story. That is why more and more of them are selecting Watrous Flush Valves. They have found that Watrous Valves have 3 special features which substantially reduce installation costs and at the same time assure a highly efficient job. These features are:

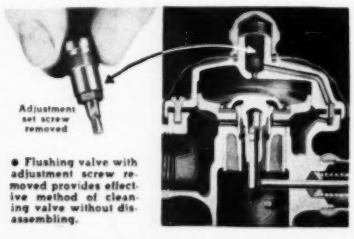
1. All ordinary dirt and sediment from new lines is removed from the by-pass of a Watrous Flush Valve by the action of an automatic, mechanically operated plunger. This keeps the valve from running — saves time and labor in getting approval of work. This is a patented feature found exclusively on Watrous Flush Valves.



• At start of each flush, plunger (A) is mechanically lifted from by-pass orifice (B) and dirt or sediment which may have become lodged there is washed away.

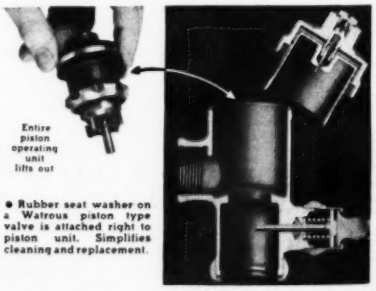
• Plunger drops and establishes the normal by-pass opening (C). This assures the proper length of flush.

2. Watrous Flush Valves can be cleaned out without being taken apart. Should a valve require cleaning for any reason it can be done by removing the adjustment set screw, replacing the cap nut and then flushing the valve several times to remove any sediment. This exclusive Watrous feature assures the saving of a great many minutes of time and labor.



• Flushing valve with adjustment screw removed provides effective method of cleaning valve without disassembling.

3. The main seat washer on a Watrous Valve can be cleaned (or replaced) in only 3 minutes by the clock. And it can be done without digging inside the valve; without taking the valve off to remove the seat; or without the use of special wrenches. Should excessive sediment in new pipes make it necessary to clean a valve seat, you can figure for yourself the saving this feature means.



• Rubber seat washer on a Watrous piston type valve is attached right to piston unit. Simplifies cleaning and replacement.

It will pay you to get complete information on these 3 money-saving features before your next flush valve job. Remember, Watrous Flush Valves not only save you installation costs but also mean lower water and maintenance costs for building owners.

Write for Folder 465 which gives complete details.

THE IMPERIAL BRASS MFG. CO., 1231 W. Harrison Street, Chicago, Ill.

Sold Exclusively Thru Recognized Wholesalers of Plumbing Materials

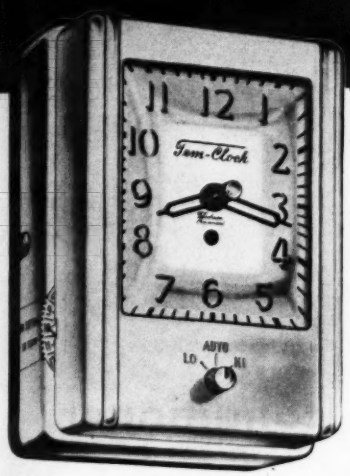
You will make more money on every job and your customers will save water and maintenance costs with

Watrous Flush Valves

Diaphragm and Piston Types

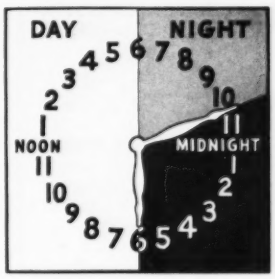
THEY PAY FOR THEMSELVES IN THE WATER THEY SAVE

You Can Increase Sales with PENN DAY-NITE CONTROL



24-HOUR COMFORT AND ECONOMY

Temperature maintained evenly at the comfort point during day-time hours... automatically reduced at retiring time for fuel economy and better sleep... restored again before rising time so the family may dress in comfortable warmth... this is the continuous 'round-the-clock service of Penn Day-Nite Control. Your customer selects the comfort temperature, and fixes the hours during which he wishes it reduced. Then he may forget it—for the entire season—or change it as often as he wishes, as easily as setting an alarm clock, with all adjustments on the outside. No more service calls to set or adjust day-night clocks.



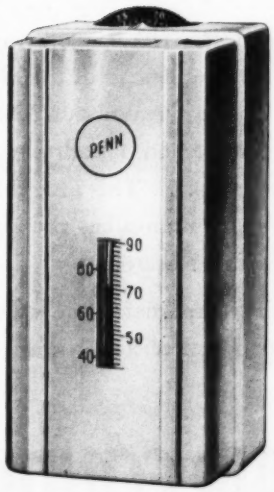
NIGHTTIME ECONOMY

Penn Tem-Clock is an attractive electric clock which may be mounted at convenient eye level in any room of the house where the service of an accurate, dependable time piece is desired.

★

DAYTIME COMFORT

Penn Temtrol, the famous heat anticipating thermostat, is mounted at table height. This magic brain of automatic heating maintains even temperature in the *four-foot zone,* where the family lives.



PENN Day-Nite Control helps you sell more automatic heating installations by adding the powerful appeal of economy to the basic sales points of comfort and convenience.

Penn's exclusive system of Day-Nite Control—with separate clock and heat anticipating thermostat—not only saves fuel, it is more effective and convenient for the customer, and lower in first cost.

Chief feature of the system is Temtrol — Penn's famous heat anticipating thermostat. Temtrol actually "senses" temperature changes before they occur—keeps room temperature amazingly uniform at the comfort point.

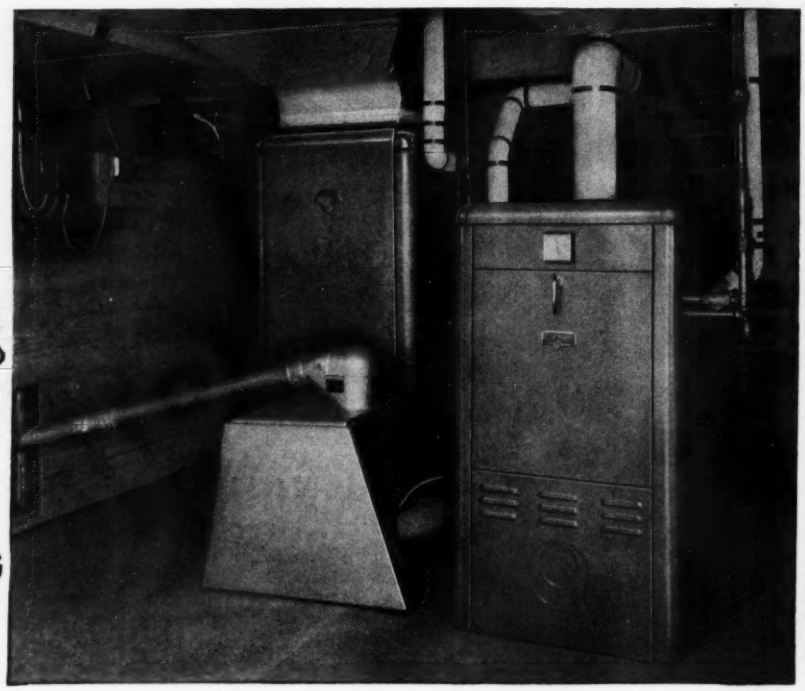
Tem-Clock is connected with Temtrol only by wire (all connections in the system are 2-wire, low voltage). The thermostat setting is not changed to reduce nighttime temperatures in this exclusive, patented system. This prevents the morning overshoot so often experienced with ordinary day-nite systems.

While the complete Penn Day-Nite Comfort-Economy system is less costly than other types to install it has the further sales advantage that the clock may be added at any time. To make more automatic heating installations use the powerful sales appeal of Penn Day-Nite Control. Write now for complete information—without obligation.

STOKER MEN: Investigate the low price and low installation cost of the Type 774 combination Day-Nite Clock and Stoker Hold-Fire Timer. Complete information on request.

PENN

Penn Electric Switch Co., Goshen, Indiana. Branches in Principal Cities. In Canada: Powerlite Devices, Ltd., Penn Electric Switch Division, Toronto, Ontario.



• • stoker to boiler to conditioner

A fast triple play is the last word in skilled cooperation. Just consider this unbeatable combination — a *good bin-feed stoker,* a *Fitzgibbons steel boiler,* and its companion unit, the *Fitzgibbonsaire.*

Here is a set-up that has everything. . . . The stoker provides automatic heat at its best. Its fuel economy is stepped up to the ultimate degree by the favoring design of the Fitzgibbons boiler. . . . The boiler in turn, supplies year-round tankless domestic hot water, economical radiator heat to kitchen, laundry, bathrooms and garage, and heat for the conditioner. . . . The Fitzgibbonsaire conditioner filters, tempers, and correctly humidifies the air which it circulates to all other rooms not radiator heated.

This pennant-winning combination of essential comfort-service, is possible with any good stoker and the Fitzgibbons equipment illustrated.

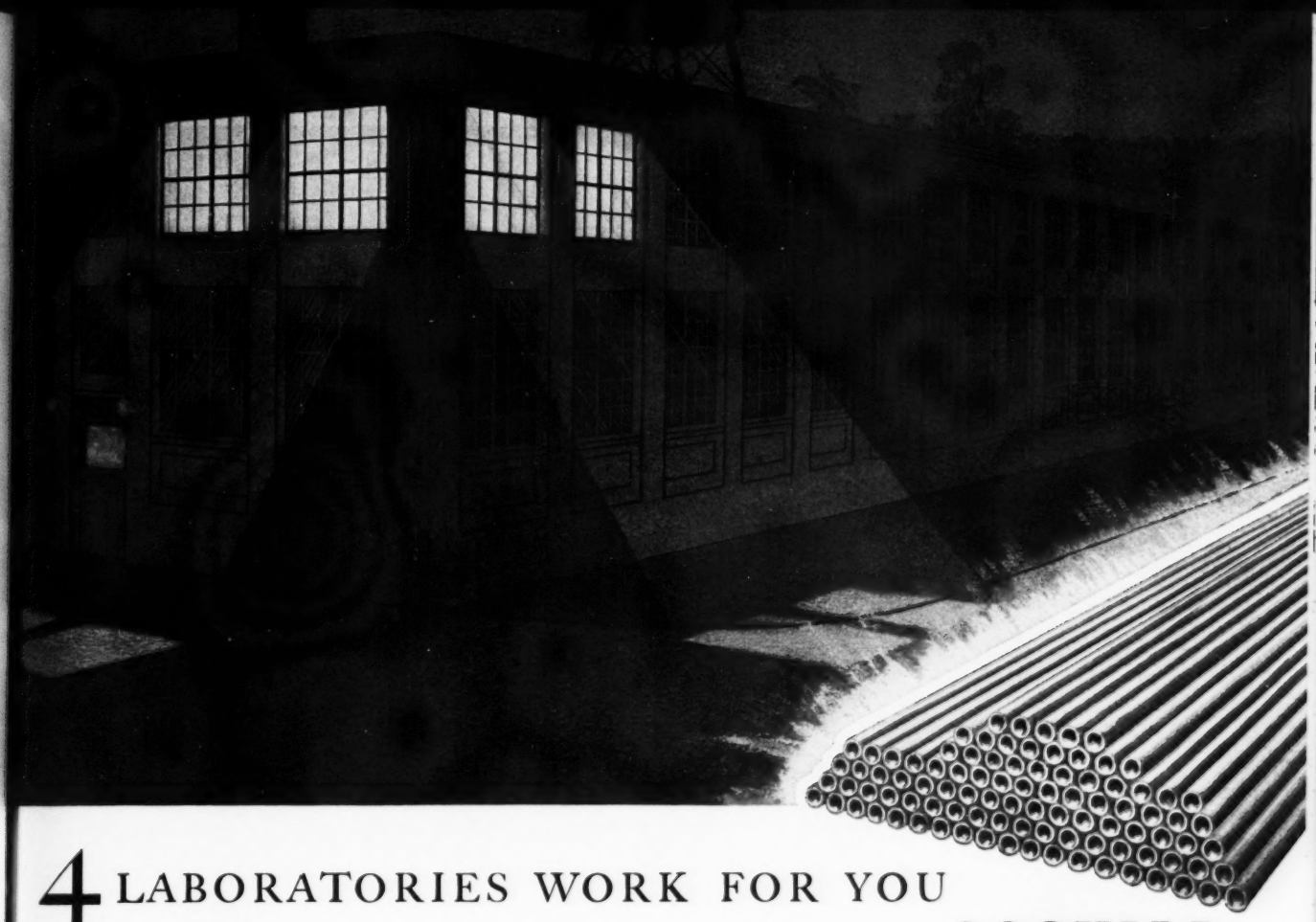
FITZGIBBONS BOILERS AND AIR CONDITIONERS

FITZGIBBONS BOILER COMPANY, INC. DE-10
101 Park Avenue, New York, N. Y.

Send me the catalog and specifications of the FITZGIBBONS AIR CONDITIONERS for use with

Anthracite ☐ Bituminous ☐

Name..... Address.....



4 LABORATORIES WORK FOR YOU *when you buy Pipe and Tubing from* SCOVILL

So that you may count on better pipe and tubing, Scovill has four laboratories, one for routine testing, three for experimental research.

Some 11,000 tests a week protect the purchases of Master Plumbers who choose their tubing with an eye to *keeping* their customers happy. We test not only the raw materials we buy, but also the finished metal out of which we make your products.

You, too, can be *sure* when you buy. Every Scovill length is clean-threading and fast-cutting to save you installation time. Pipe: Yellow Brass, Red Brass, and Copper. Standard and heavy wall thickness.

✶

COPPER WATER SERVICE TUBING: Soft temper in coils; hard temper in straight lengths. Types K, L, and M.

Write for interesting Scovill leaflets that make sales on many Scovill brass products for the Master Plumber: lead joint traps; wastes; shower heads; special tank covers; special tub fillers; curtain rods; and other fittings.

✶

WE SELL ONLY TO QUALIFIED PLUMBING WHOLESALERS

SCOVILL *Masters of Metal*

SCOVILL *saves you time in selling . . . time in installing*

SCOVILL MANUFACTURING COMPANY, WATERVILLE DIVISION, WATERVILLE, CONN.
MORENCY-VAN BUREN DIVISION, STURGIS, MICH.

WOLVERINE

THE SYMBOL OF DEPENDABILITY

For over forty-three consecutive years it has been our pleasure and responsibility to serve the trade.

From close contact over this considerable period we believe that Domestic Engineering has done its full share toward the progress of the profession of plumbing.

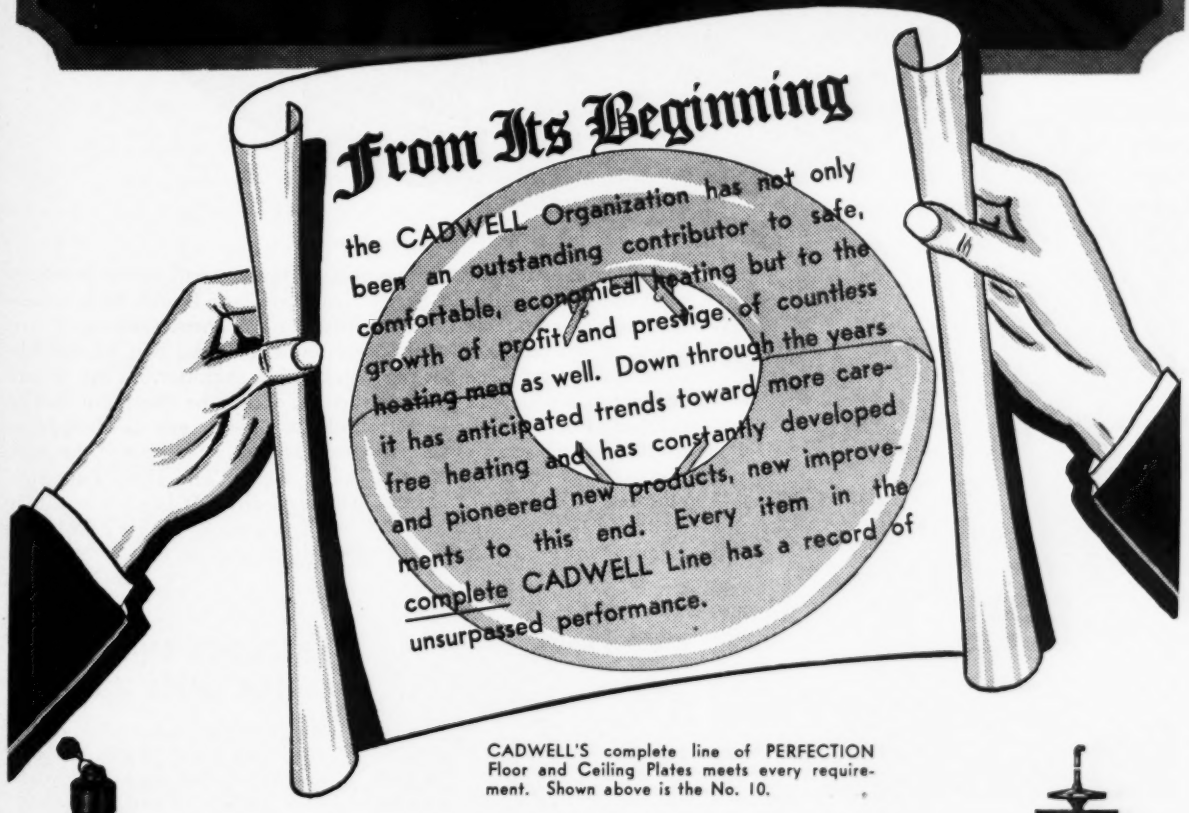
We congratulate its Staff upon its present anniversary.

WOLVERINE BRASS WORKS

GRAND RAPIDS MICHIGAN

CADWELL *Has Gone a Long Way!*

SINCE 1894, COMPLETE CUSTOMER SATISFACTION AND PROFITS FOR THE HEATING MAN


From Its Beginning
the CADWELL Organization has not only been an outstanding contributor to safe, comfortable, economical heating but to the growth of profit and prestige of countless heating men as well. Down through the years it has anticipated trends toward more care-free heating and has constantly developed and pioneered new products, new improvements to this end. Every item in the complete CADWELL Line has a record of unsurpassed performance.

CADWELL'S complete line of PERFECTION Floor and Ceiling Plates meets every requirement. Shown above is the No. 10.

No. 25 Self Closing Diaphragm Type Temperature and Pressure Relief Valve.

No. 75 Pressure and Temperature Relief Valve.

At Left: No. 50 Angle Type (Diaphragm Operated) Adjustable Vacuum Air Valve.
At Right: No. 10 Angle Type Thermostatic Air Valve. Adjustable or not, as desired.

No. 35 Pressure and Vacuum Relief Valve.

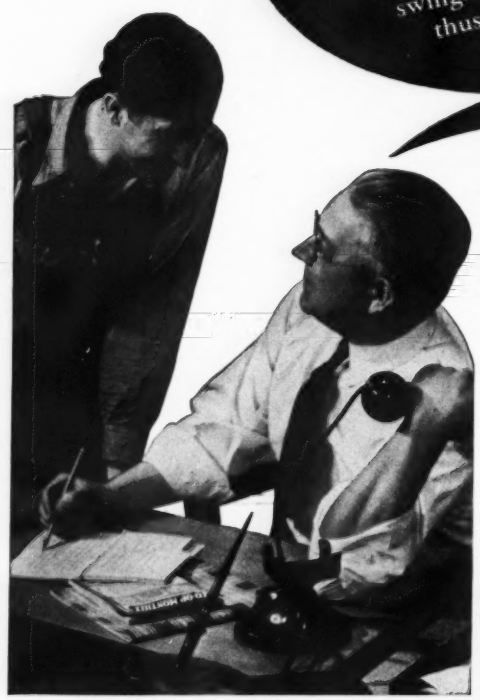
No. 45 Unit for Hot Water Heating Systems.

CADWELL Products are sold only through regular wholesale channels. Write us on your letterhead for descriptive catalog.

The BEATON & CADWELL MFG. CO. *Established 1894* NEW BRITAIN, CONN.

"WE'VE LANDED THOSE OTHER NINE HOUSES"

"The savings you made when installing that new National boiler in the Jones sample house was a big help in swinging the order. Incidentally, he is highly enthused about the way the boiler appeals to his prospects and the way it helps to sell his houses."

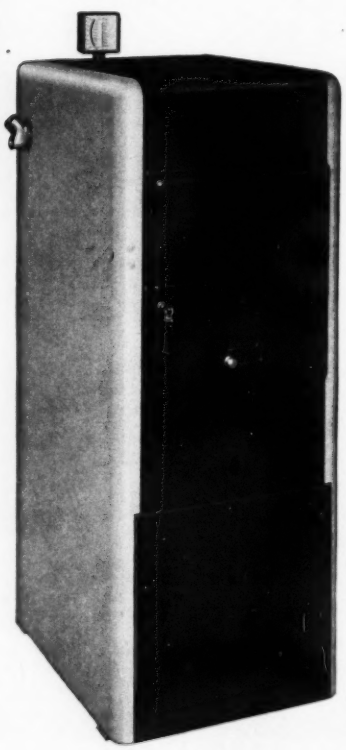


Contractors everywhere are regaining more small house business with the National No. 1 Series Heat Extractor Boiler. Its wet base increases efficiency and reduces installation costs. Only split fire brick, which are readily obtained anywhere and can be quickly installed, are required for the combustion chamber. As the bricks contact water-backed heating surface, except at the front, costly insulation on the floor and around the sides is not needed. Heat that ordinarily escapes into the boiler room, or is wasted through the floor, is absorbed by the boiler water. The Heat Extractor eliminates the need of a large, clumsy boiler. It is truly the first boiler to exemplify the trend to more compact, efficient and economical equipment for modern small homes.

FEATURES TO BOOST YOUR SALES

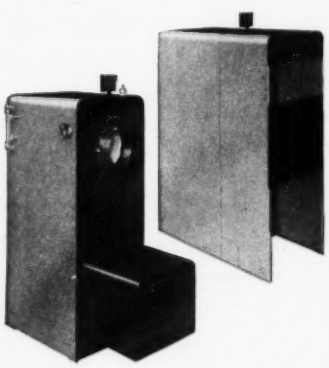
- Built-in water heater for use at either side.
- Sections shipped assembled to reduce costs.
- Heat Conserver forces gases against finger-studded crown—an exclusive National feature.
- Ground surfaces between sections prevents air leakage, permits accurate adjustment of burner and eliminates puttying around sections.
- Tappings in back section accommodate controls.
- Five flue passages, long fire travel, and insulation to floor all help reduce fuel bills.
- Boiler ratings, workmanship and materials are guaranteed by the National Boiler Bond.

See your National Radiator Wholesaler or write us for complete details about this remarkable boiler.



DESIGNED AND PRICED FOR SMALL HOMES

The oil-fired model illustrated is rated from 230 to 430 Sq. Ft. steam, and 370 to 680 Sq. Ft. hot water. Also available for coal or gas.



Above (left) burner enclosure for front or rear firing; (right) jacket extension to enclose burner and controls. Available at extra cost.

THE NATIONAL RADIATOR COMPANY · *Johnstown, Pa.*

THE OUTSTANDING TRUCK FOR THE MONEY

FORD V-8 FOR 1940

FORD FEATURES FOR 1940

New styling • Increased engine accessibility Increased chassis accessibility • Choice of power—95, 85, 60 hp • 42 body and chassis types • New Sealed-Beam Headlamps • Bigger batteries, larger generators with automatic voltage regulation • Big hydraulic brakes • Full-floating rear axle with straddle-mounted pinion and ring gear thrust plate Two-speed axle (optional at extra cost) Ford Engine and Parts Exchange Plan.

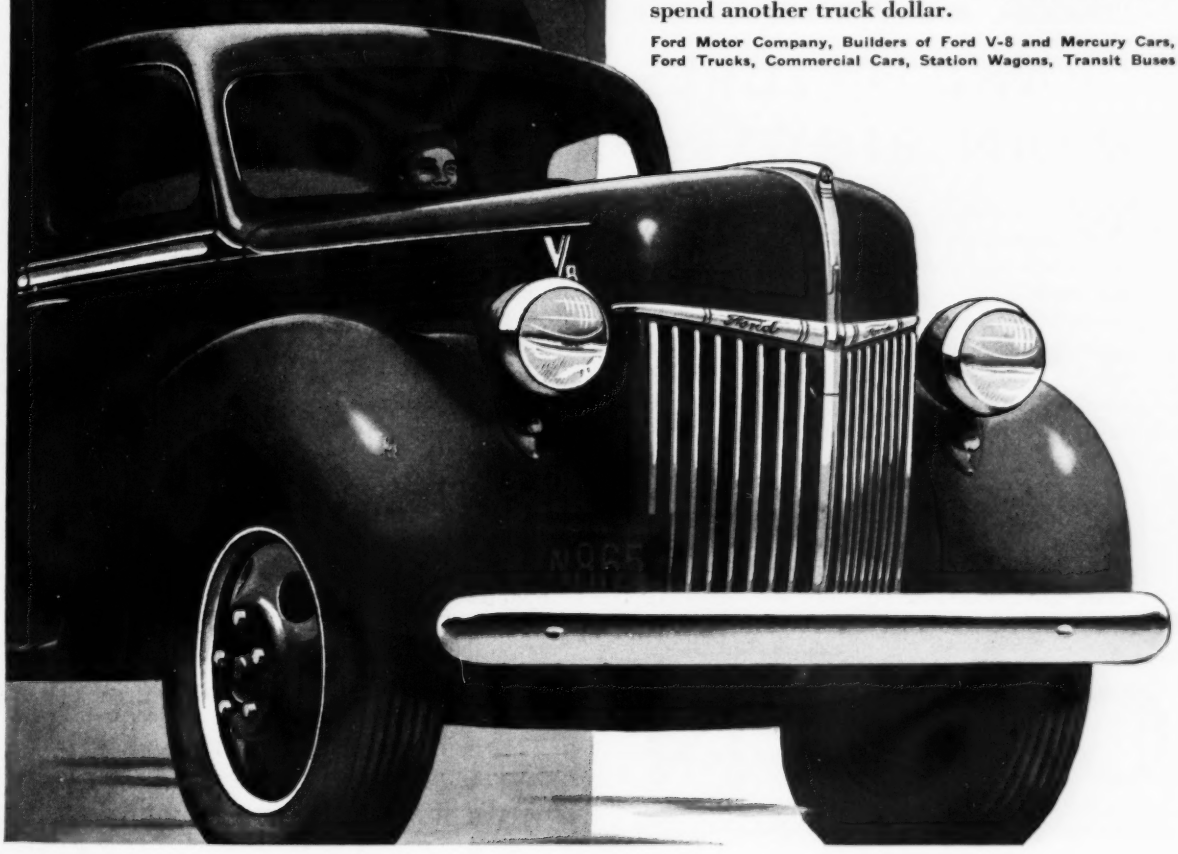
The big new 1940 Ford Truck line gives you value in construction, performance and economy that means "the outstanding truck for the money."

Three eight-cylinder engine sizes—95, 85 and 60 hp. Six wheelbases. 42 body and chassis types.

There's new styling. New engine and chassis accessibility, making it easier to check the oil, service the distributor and other engine accessories, as well as clutch, transmission and rear axle. New, softer, more comfortable seats in Regular cabs. These and many more improvements join a host of time-tested, time-proved Ford features in 1940.

See the new Ford Truck at your dealer's. Compare it with any other truck. Arrange for an "on-the-job" test and know the difference before you spend another truck dollar.

Ford Motor Company, Builders of Ford V-8 and Mercury Cars, Ford Trucks, Commercial Cars, Station Wagons, Transit Buses



65% OF HOMES BUILT TODAY ARE UNDER $6,000

The trend in residential building today is toward smaller homes. Government records show that while 56% of the homes financed by FHA loans in 1936 were below $6,000 in value—by 1938 this percentage had jumped to 65%. Present indications are that the swing toward smaller, less expensive homes is a permanent one.

CRANE FIXTURES FOR SMALL HOMES MEAN BIGGER PROFITS FOR YOU

WITH 65% of the homes being built in this country in the $6,000 class or under—here is where a large share of the plumbing business as well as the plumbing profit must lie. But the owner of these small homes has grown more critical of the equipment he installs. In plumbing, he demands compact fixtures designed to suit modern taste and priced for the restricted budget—but he also demands that in these fixtures there be no compromise with either convenience or quality.

Crane Co. has designed and priced a line of plumbing fixtures and of heating equipment to help you get your share of this small home business. This makes it possible for you to give your customers Crane quality in lavatories, bathtubs, closets and sinks—in boilers, oil burners, stokers and radiators at prices that by any standard are decidedly competitive. Yet despite the low cost of this equipment, it is Crane quality throughout, backed by the Crane name and reputation.

If in your community you are losing orders because of price competition—if you have felt that you could not sell successfully in the small home field—it will pay you to investigate further and let the figures speak for themselves. It might surprise you to know that you can supply your customers with Crane equipment for little more than equipment that is distributed by companies whose sole selling argument is low price. Consult your Crane Representative.

CRANE

CRANE CO., GENERAL OFFICES
836 S. MICHIGAN AVE., CHICAGO

VALVES • FITTINGS • PIPE
PLUMBING • HEATING • PUMPS

NATION-WIDE SERVICE THROUGH BRANCHES, WHOLESALERS, PLUMBING AND HEATING CONTRACTORS

"SEE WHAT 'DEPENDABLE CONSTRUCTION' MEANS IN STURTEVANT SPEED HEATERS!"

Speed Heater Heating Element *takes 5¼-ton pull without flinching... a demonstration of ruggedness that means lasting service... and a sales point that will impress your customers!*

Even under the tremendous drag of over five tons dead weight, this Sturtevant Speed Heater heating element refused to be torn apart. Nowhere—at any point—did it show even the slightest failure. An exceptionally severe test of sturdy strength!

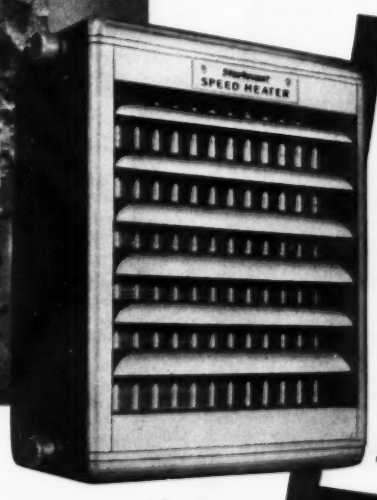
More than that, it is an example of the dependable construction you can expect to find in every part of Sturtevant Speed Heaters. Assurance of long, dependable service.

Note carefully the eight Speed Heater advantages below that help contractors land unit heater jobs. And write to us — or to our distributor, Crane Co.—for Speed Heater Catalog.

B. F. STURTEVANT COMPANY, HYDE PARK, BOSTON, MASS.
Branch Offices in 40 Other Cities
B. F. Sturtevant Co. of Canada, Ltd.—Galt, Toronto, Montreal

Sturtevant
REG. U. S. PAT. OFF.

Puts Air to Work



Compare these STURTEVANT SPEED-HEATER 8-point Superiorities:

1 **Time-Saving Hangers**
Furnished with every Speed Heater. Mild Steel. Easily formed in vise.

2 **Double Pipe Connections**
Supply and return connections may be made on *either* side of unit. Save time, labor, pipe.

3 **Maximum Headroom**
You can install Speed Heaters tight up against ceiling.

4 **Guaranteed for 200 lbs.**
Suitable for all steam pressures up to 200 lbs.

5 **Low Final Temperatures**
Assure comfort for people near heaters.

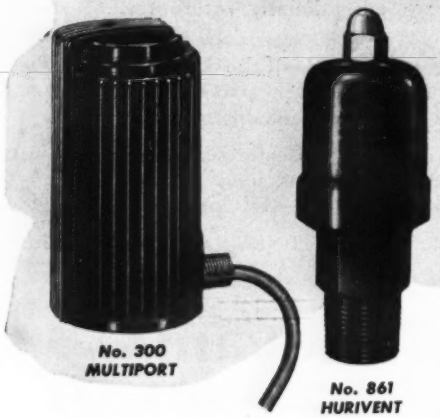
6 **Guaranteed Capacities**
In accordance with A. S. H. V. E. requirements.

7 **Many Sizes**
Ranging from 100 sq. ft. equivalent direct radiation to 1250 sq. ft.

8 **Quick Shipment**
Popular voltages stocked at local points.

SPEED HEATERS ARE DISTRIBUTED BY CRANE CO.

Here's what Heating Men say of the IDEAL FAST-VENTING SYSTEM



TWO years ago the Ideal Fast-Venting System, Multiports for radiators and Hurivents for steam mains, was introduced. At that time we made claims for this system that sounded extravagant. But since then two heating seasons have intervened. Many of the old timers who thought this out have used these valves, and—well, listen to what just a few of them have to say:

For Sale by all Leading Wholesalers

DETROIT LUBRICATOR COMPANY

General Offices: DETROIT, MICHIGAN

Canadian Representatives: Railway & Engineering Specialties Ltd., Montreal, Toronto, Winnipeg

Once In A Lifetime

"I have spent close on to 45 years in the steam and hot water heating business and can truthfully say that the fast-venting Arco Detroit Multiport and Hurivent valves have proven to myself, the best of all others that I have used."

•

A Sick System Restored to Health and Vigor

"I had a very sick one-pipe heating job that I installed some time ago in a three story building that was very long and narrow. Considerable trouble was encountered because of the fact that by the time the last radiator on the top floor was just receiving steam the thermostat turned off the burner resulting in cold rooms. You cannot imagine the expense and service calls I have experienced on this job.

"When, after installing your No. 300 Arco Detroit Multiport on the radiators and No. 861 Hurivents on the ends of the mains, the system was balanced and the job fired up, the results were far beyond expectations.

"The system heats evenly at lower boiler pressure. My customer is well pleased; and I have been saved a lot of grief."

•

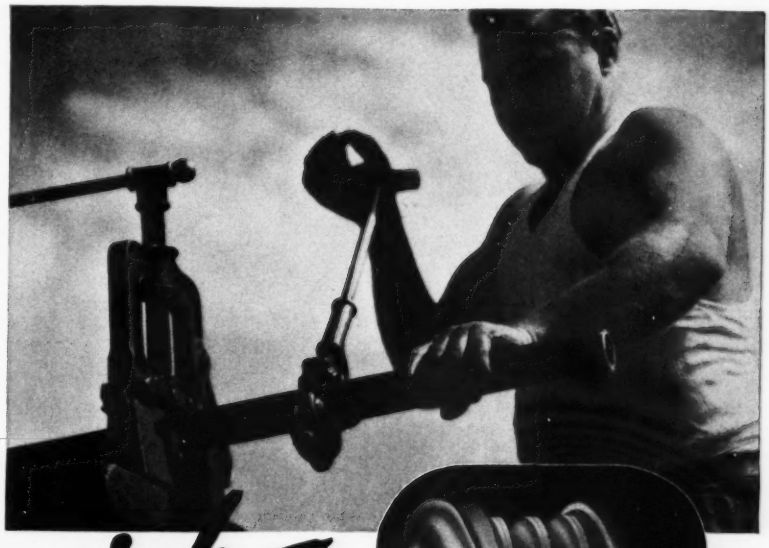
Ideal Fast-Venting Saves A Stoker Job

"We were called in on this job by the stoker people who were about to lose this installation, and after advising the owner what we proposed doing, we were given the job on a guarantee basis.

"Today we find the last radiator which is approximately 200 feet from the boiler is heating just as fast as the radiator practically over the boiler, and we also find the Hurivent on return discharging almost instantly when the stoker goes into operation.

"This installation has proved so satisfactory, that both the stoker people and ourselves have received payment in full and I assure you we have enjoyed a nice profit."

**These are but a few of the unsolicited testimonials in our files. Others will be supplied upon request.*



You'll Notice a Big Difference...

On the job—

● There's a big difference in the way pipe cuts, threads, bends and couples up on the job. Try Fretz-Moon Pipe for your next installation and notice it.

You'll find that this highly uniform pipe works with unusual ease—and that every length is equally soft, ductile and free from hard spots. You'll discover what it means in time and profit to use pipe that is really easy to install.

It's all in the way Fretz-Moon Pipe is made—by the scientifically-controlled "continuous process" that takes all of the guesswork out of pipe making.

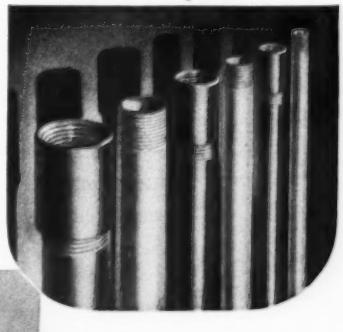
In addition, you'll find that Fretz-Moon Pipe is strong, clean and free from scale. It makes possible sound, long-lasting piping systems at low cost.

Tell your jobber to send you Fretz-Moon Pipe. If he doesn't stock it, write us. Fretz-Moon Tube Co., Inc., Butler, Pa.

If the job called for it, you could take a length of Fretz-Moon Pipe and coil it like this without distortion, damage to weld or galvanizing.

• • •

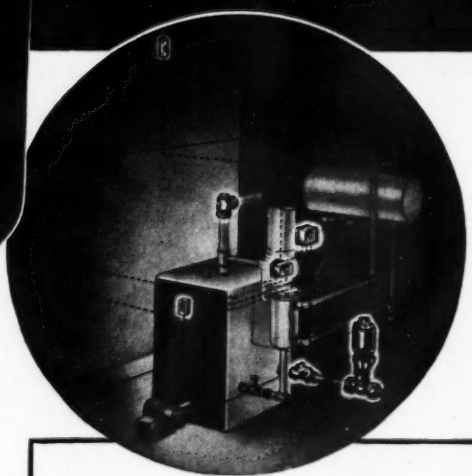
Fretz-Moon Pipe is available in steel or copper-bearing steel—black or galvanized finish—and in uniform 20-foot or extra long lengths.



Try FRETZ-MOON PIPE

AND KNOW THE DIFFERENCE

The new
SUMMER -WINTER CONTROLLER



THE new Minneapolis-Honeywell Summer-Winter Controller is a combination instrument which combines the functions of a Low Limit Aquastat and a Special Circuit Relay. In addition to simplifying installation and reducing costs, the Summer-Winter Controller also brings a saving in wiring. Your customers will appreciate this saving by the combination instrument. Your service department will want it because of the savings in installation, time and materials. On your next job be sure you use the new Minneapolis-Honeywell Summer-Winter Controller.

Minneapolis-Honeywell Regulator Company, 2801 Fourth Avenue S., Minneapolis, Minn. Branch offices located in all principal cities.

MINNEAPOLIS-HONEYWELL
Summer-Winter Control System

■ **Automatically controls both the summer and winter cycles, instead of manually adjusting the Aquastat at least twice a year. Saves fuel by keeping boilers only warm enough to supply domestic hot water in summer and to satisfy house heating load in winter. The Minneapolis-Honeywell control system avoids excessive hot water, under-heated radiators, high basement temperatures, and eliminates service. . . . It is unquestionably the best way to control a Summer-Winter Circulator job.**

Sincerely
Partners
in
Public Acceptance
of
AUTOMATIC HEATING
and
MINNEAPOLIS-HONEYWELL
Summer-Winter Controller

NOW! IS THE TIME *to cash in on* DEMING WATER SYSTEMS

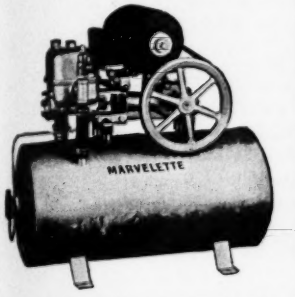


FIG. 1975 "MARVELETTE" FOR SHALLOW WELLS

Capacity: 250 gallons per hour

A popular, fast-selling water system. Provides low cost running water for small suburban and country home, summer cottage, wayside restaurant, tourist camp, etc. etc. ● Features: Noiseless (you can't hear it run!)... Full cushioned power (pump mounted on rubber cushions)... Repulsion-Induction motor... Stainless steel piston rod... Drop-forged crankshaft ...Automatic oiling system... Many other features.

Make sales while the sun shines! Winter's on its way! People who have delayed buying electric water systems are now hurrying to avoid going through another winter without running water! With the Deming line you can meet *every* requirement for a shallow or deep well system of correct capacity at the right price. Furthermore, you have more convincing advantages to offer when you sell Deming Water Systems... QUIET OPERATION... DEPENDABLE PERFORMANCE... LOW COST UPKEEP ... all assured by correct engineering principles and highest quality materials that mean GREATER VALUES for YOUR customers! Write TODAY for complete information and catalogs explaining many more features.

FIG. 2090 "MARVEL" FOR SHALLOW WELLS

Quiet operation. Timken Roller Bearings on crankshaft. Ball Bearings on crank end of connecting rod. Cap. 275 to 600 gals. per hr.

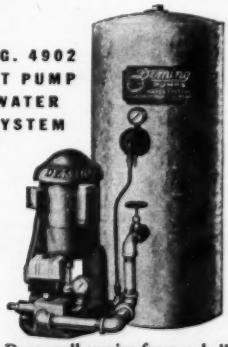


FIG. 4902 JET PUMP WATER SYSTEM

Deep well service from a shallow well pump. *Only one moving part.* Available in two pipe and single pipe jets. Full range of capacities.

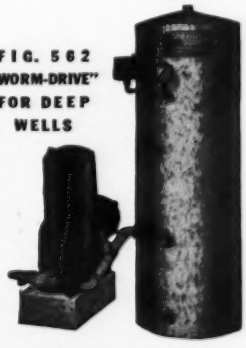


FIG. 562 "WORM-DRIVE" FOR DEEP WELLS

Hardened steel worm. Phosphor bronze worm gear. Ball bearings on crankshaft; all parts fully enclosed. Cap.–105 to 1140 gals. per hr.

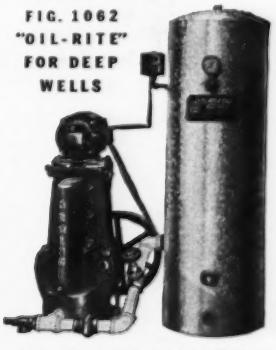


FIG. 1062 "OIL-RITE" FOR DEEP WELLS

Heavy duty construction. Helical cut gears. Force feed lubrication. Separate discharge casting. Cap.: 105 to 3600 gals. per hr.

THE DEMING COMPANY • SALEM, OHIO

MANUFACTURERS OF DEPENDABLE PUMPS AND WATER SYSTEMS SINCE 1880

WE COULD BUILD 'EM CHEAPER

No mechanical equipment about the home or farm is called upon more frequently for service every day than a water system. And this service demand continues to grow from week to week. More water for household, for barn and feed lots, and for many other purposes is amplified in thousands of installations where water requirements soon become too severe for small capacity water system installations.

That's the reason Myers Water Systems are full size, full capacity, full quality. An adequate supply of water for every need. Freedom from repairs and adjustments. Minimum operation costs. Durability for long time performance. We could build them cheaper but in so doing break down our sincere efforts over many years to maintain highest quality standards at favorable prices that will bring good will and profits to dealers, and sustain the confidence and respect for the name Myers on the part of their customers and friends.

The very best insurance against inadequate capacity and performance uncertainty is to sell and install Myers Water Systems with the excellent new line of Myers Ejecto's thrown in for good measure.

Write or wire, or call our nearest distributor.

THE F.E.MYERS & BRO. CO.
ASHLAND, OHIO.

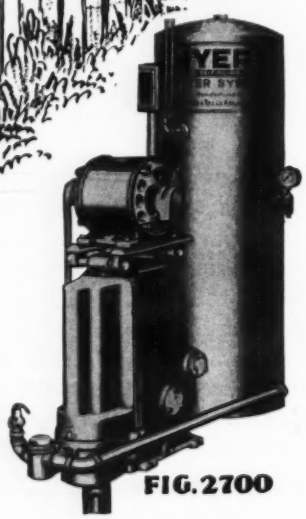


FIG. 2700

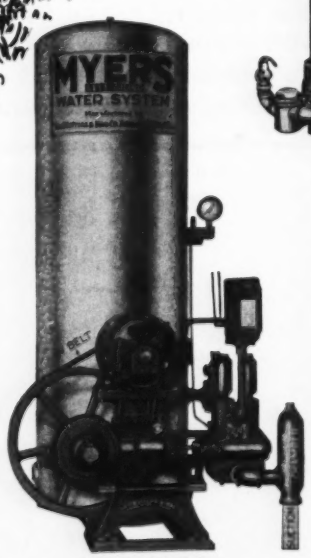


FIG. 2510

FIG. 3012

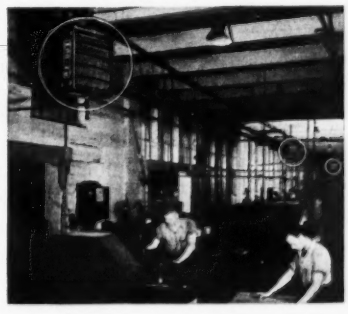
FIG. 3135

FIG. 3015

MYERS WATER SYSTEMS

PUMPS – WATER SYSTEMS – SPRAYERS – HAY TOOLS – DOOR HANGERS

"HEATING JOBS-AND MORE OF 'EM ...WITH THE NEW MODINE UNIT HEATER"



IT'S THE BIGGEST BREAK YOU'VE HAD IN SIX YEARS! You're going to make more money with this NEW MODEL Modine Unit Heater —because it's going to *make more heating jobs* for you.

The New Modine offers not only a record high in value but the greatest unit heater advancements in years. So exceptional are these new features and so important their advantages, that they widen the whole field of unit heater application.

Safety is *built-in* with the New Fan Guard, an extra protection for factory workers. That will "crack wide open" new industrial jobs where you couldn't even get your foot in the door before. The New *Sound-Silenced* Modine is quieter than anyone ever thought a unit heater could be. That means more store and office jobs.

Every one of the new Modine features has new job-getting advantages all its own—with a new and tremendous sales appeal—because users can't get these features in any other unit heater.

Get the New Modine catalog—see how and where to get new jobs.

NEW **ACOUSTICALLY-TREATED SOUND-SILENCED CASING** — A sound-silencing coating of acoustical mastic covers the entire interior surface of the casing. All noise from within is effectively deadened. **VENTURI FAN SHROUD**, built integral with casing body, eliminates eddy currents; quiets air in-rush sounds.

Only the New Modine Has These Quieter-Operation Features.

NEW **SAFETY FAN GUARD AN INTEGRAL PART OF DESIGN** — Safety Fan Guard is actually incorporated into the basic structure of the Modine unit, securely attached at four points. Instead of the menace of a unit heater fan left unshielded, Modine's staunch steel safeguard gives constant protection. Safety is standard equipment.

Only the New Modine Has Built-In Safety Fan Guard!

NEW **PROTECTION AGAINST RUST — BY BONDERIZING** — Modine is the *first* and the *only* unit heater available *protected against rust by Bonderizing*— Bonderizing not only makes Modine casing and other sheet metal parts resistant to formation and progress of rust. *It holds the finish to the metal,* making it infinitely more durable and permanently fine in appearance.

Only the New Modine is Rust-Protected by Bonderizing.

NEW **BEAUTY OF APPEARANCE REFLECTS MODERN DESIGN**—The cleaner, more flowing lines...rounded corners of the casing...deeply recessed, V-formed louvres....all give the new Modine Unit Heater a virile, modern beauty decidedly in keeping with the latest types of store, office, or industrial plant interiors.

Only the New Modine Gives You Style Leadership.

THIS PRODUCT IS
Rust-Protected
by
MODINE
RUST PROTECTION IS PROVIDED BY BONDERIZING • BONDERIZING HOLDS PAINT TO STEEL •
NEW
• Safety Fan Guard
• Rust Protection by Bonderizing
• Sound-Silencing
ACOUSTICAL INSULATION DEADENS SOUND
VENTURI FAN SHROUD QUIETS AIR INRUSH
CONCENTRIC RINGS OF FAN GUARD ACT AS VIBRATION DISSIPATORS
MOTOR RESILIENTLY MOUNTED AT 4 POINTS
VELOCITY GENERATOR SPREADS AIR EVENLY—AVOIDS AIR RUSH NOISE PEAKS

MODINE MANUFACTURING COMPANY, 1722 Racine St., RACINE, WIS.

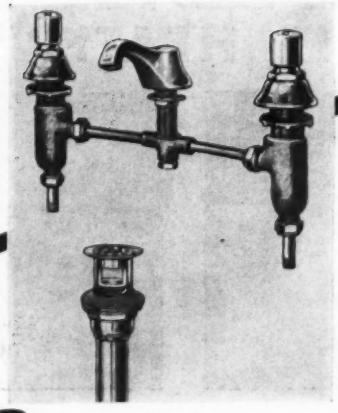
HEATING, COOLING AND AIR CONDITIONING EQUIPMENT

Sold through Heating Contractors and Recognized Wholesalers

Speakman

SELF-CLOSING *Metering Fixtures*

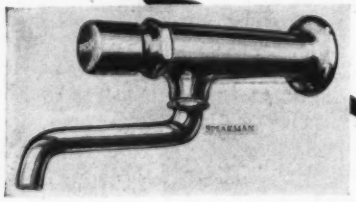
Have Major Advantages



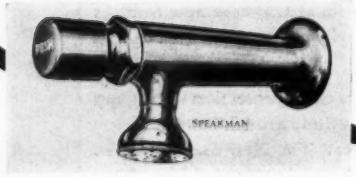
S-4170
One of three types of Speakman Combination Metering Lavatory Fixtures.

NOT just self-closing fixtures, but newly-designed self-closing fixtures that meter water accurately, providing an efficient and economical means of water control for lavatories, wash-ups and ice-water faucets. They are ideal for installation in schools, institutions, industrial plants, public and semi-public buildings where volume of water consumption is an important factor.

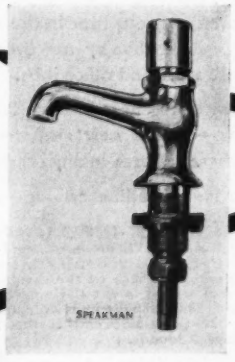
In operation these fixtures release a predetermined amount of water. External adjustment, without shutting off the supply, is provided for controlling the volume—from a mere "dash" to "1½ gallons"—as desired. Valves are non-hammering and non-dripping. The entire mechanism is self-contained in a single unit, which is renewable.



S-4130—*Speakman Self-Closing Metering Ice-Water Faucet.*



S-2100—*Speakman Self-Closing Metering Wash-up Fixture.*



S-4320
Speakman Self-Closing Metering Basin Faucet

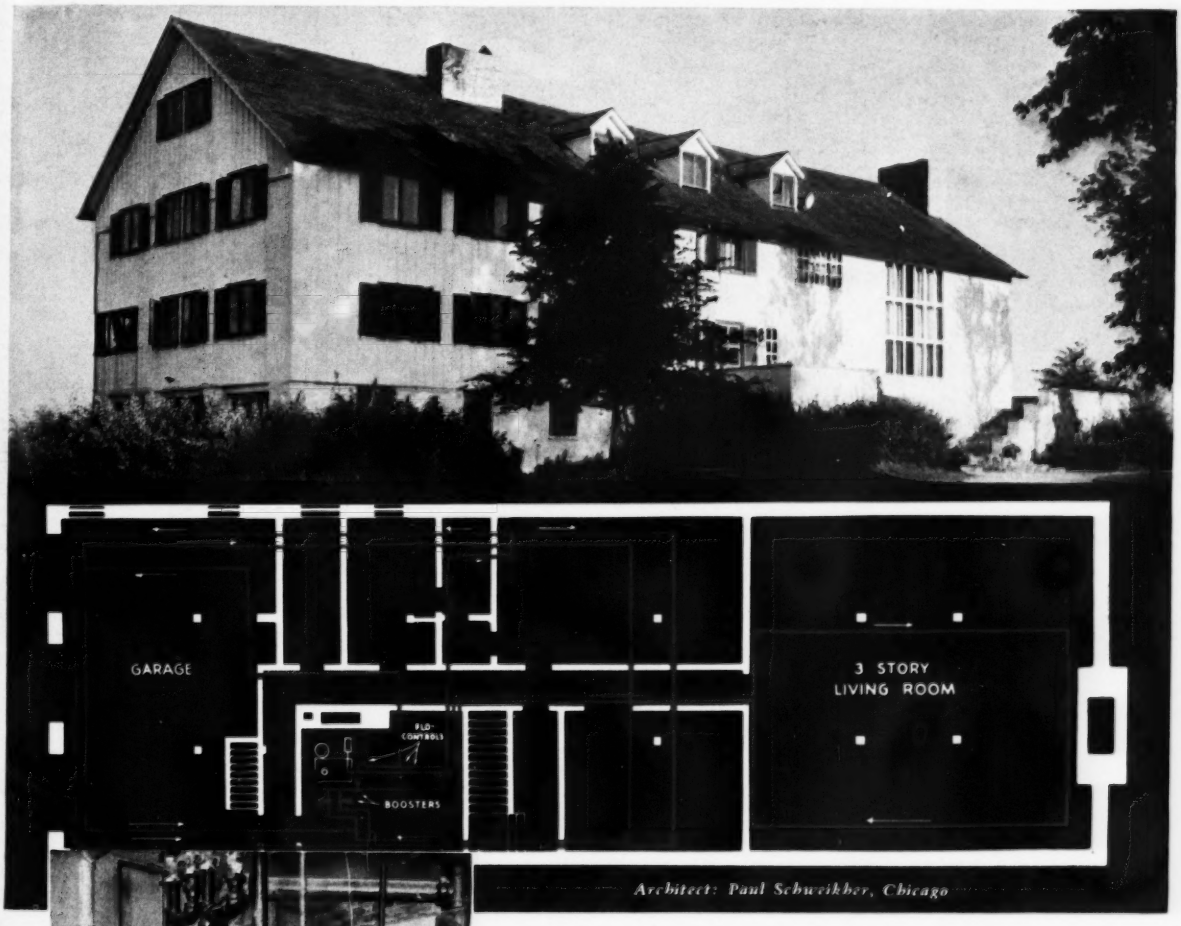
In these Speakman Metering fixtures, architects, builders and master plumbers are assured complete client satisfaction because they are real money savers. For complete details, see our Catalog "S" or write us.

SPEAKMAN COMPANY
WILMINGTON, DELAWARE

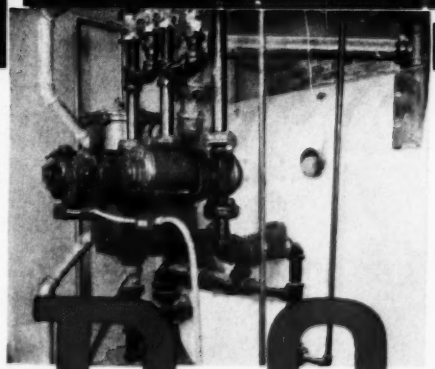
SPEAKMAN SINCE 1869

SHOWERS • SHOWER HEADS • BATH FIXTURES • SI-FLO (*SILENT*) FLUSH VALVES
LAVATORY FIXTURES • SINK FIXTURES • INSTITUTIONAL AND INDUSTRIAL FIXTURES

AMAZING TRANSFORMATION AIDED BY B&G *MONOFLO* SYSTEM



Architect: Paul Schweikher, Chicago



ORIGINALLY A HORSE BARN . . . NOW A LUXURIOUS RESIDENCE WITH MANY UNUSUAL FEATURES

Hard to believe that this striking residence once functioned as a barn on a well known horse breeding farm. Cleverly remodeled, both exterior and interior reflect a high degree of architectural ingenuity.

A Monoflo Heating System is installed in this house . . . a *single main* system of forced circulation hot water, with provision for year around domestic hot water. Its three-zone layout permits a perfectly flexible control of heat in accordance with the unusual characteristics of the building.

The living room represents a heating problem in itself. It is three stories high with huge windows, requiring 680 square feet of cast iron radiation. One of the three zones is devoted exclusively to heating this space.

This is one of the many cases where Monoflo Heating has proved as ideal for the "different" job as it is for more common types of installation. Send for complete information.

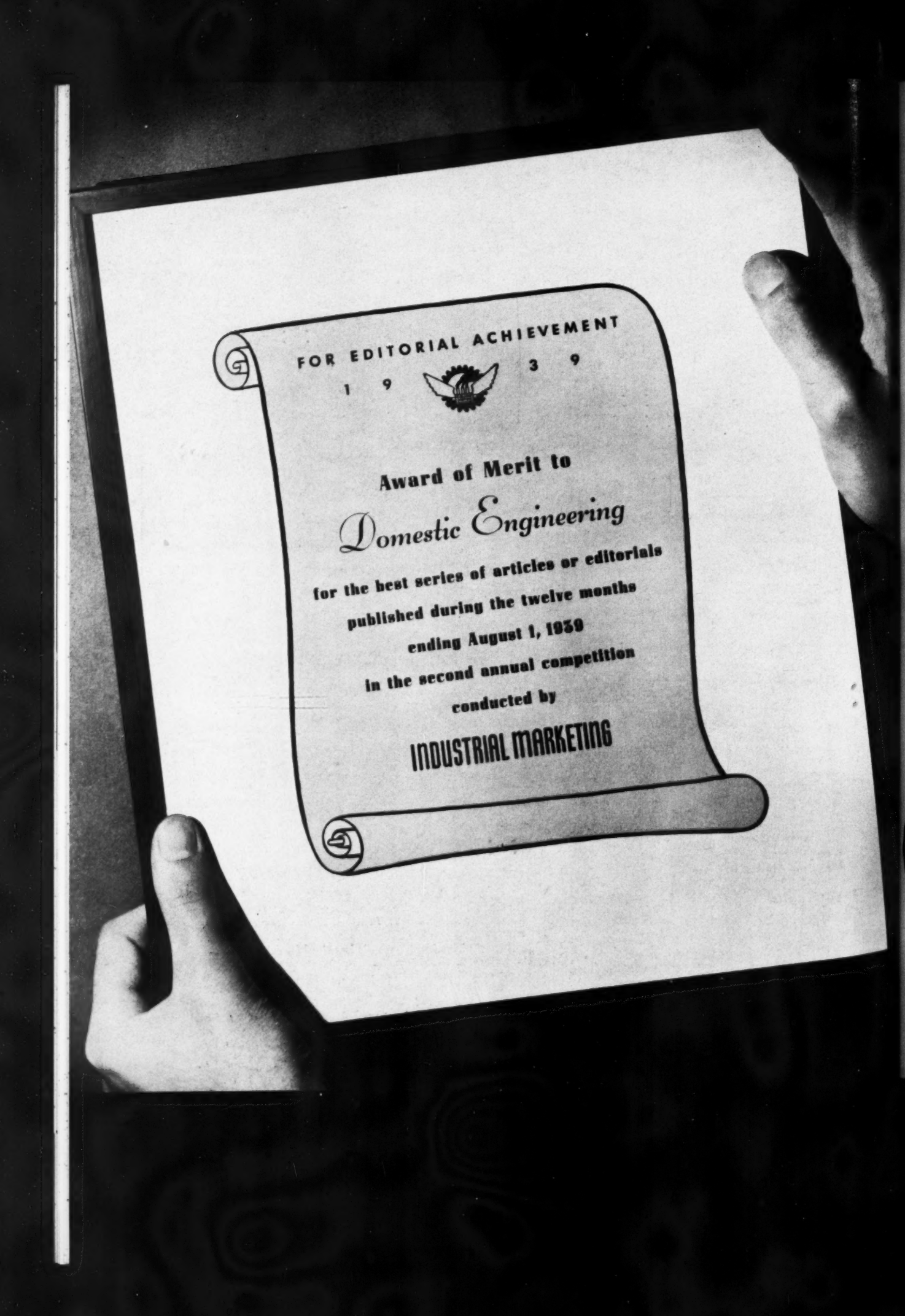
B&G

BELL & GOSSETT CO.

3000 WALLACE ST., CHICAGO

Canadian Representative: S. A. Armstrong, Ltd., 720 Bathurst St., Toronto, Can.

B&G Products are stocked and sold by leading wholesalers of Heating and Plumbing equipment


FOR EDITORIAL ACHIEVEMENT
1 9 3 9
Award of Merit to
Domestic Engineering
for the best series of articles or editorials
published during the twelve months
ending August 1, 1939
in the second annual competition
conducted by
INDUSTRIAL MARKETING

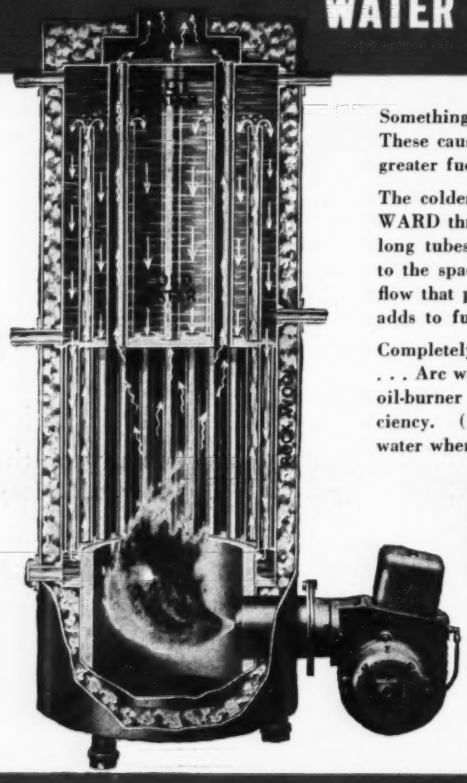
50 YEARS OF SERVICE
and
HIGHEST HONORS IN PUBLISHING

Since its founding in 1889, DOMESTIC ENGINEERING has merited and has received the recognition of the entire plumbing and heating industry on the basis of its many and notable accomplishments. DOMESTIC ENGINEERING is proud of the honor that comes with 50 years of service to our industry.

Now, coincidental with the celebration of its fiftieth year of service, DOMESTIC ENGINEERING has received the 1939 Award of Merit for Editorial Achievement at the annual convention of the National Industrial Advertisers Association, in competition with 125 of America's leading business magazines.

DOMESTIC ENGINEERING takes this occasion to acknowledge with sincere appreciation these two honors which come simultaneously.

Announcing ALDRICH "Heat-Pak" OIL FIRED WATER HEATER and SMALL HOME BOILER



Something NEW—structurally new! Note the alternate *short* and *long* tubes. These cause a "percolator" action that means a much more rapid water circulation, greater fuel economy and prevents accumulation of scale in the heater.

The colder water at the bottom of the storage compartment MUST FLOW DOWNWARD through the shorter tubes and the heated water MUST flow UP through the long tubes. This "unbalanced" circulation involving ALL the water (even down to the space around the combustion chamber) is what causes the many-times-faster flow that prevents "liming" of the tubes and saves fuel. More heating surface also adds to fuel economy.

Completely rock-wool insulated . . . Available either galvanized or non-galvanized . . . Are welded throughout . . . Equipped with standard flange-mounted ALDRICH oil-burner . . . Removable refractory combustion chamber . . . 80% overall efficiency. (Boilers are also available with built-in coil for heating domestic hot water where water supply is soft.)

Uses low-cost No. 3 oil . . . Heats 22 gallons for 1c using 6½c fuel. It will bring new fame to the Aldrich name.

Made in 4 sizes: 125, 175, 300 and 500 g.p.h. with 450, 650, 1050 and 1750 sq. ft. radiation recommended.

Our PACKAGE-UNIT-PLAN means a *complete* oil-fired-boiler, forced-circulation unit (except pipe and radiation) all in one package from one firm. It is the real answer to a lot of prayers! Most important of all—it is made by Aldrich.

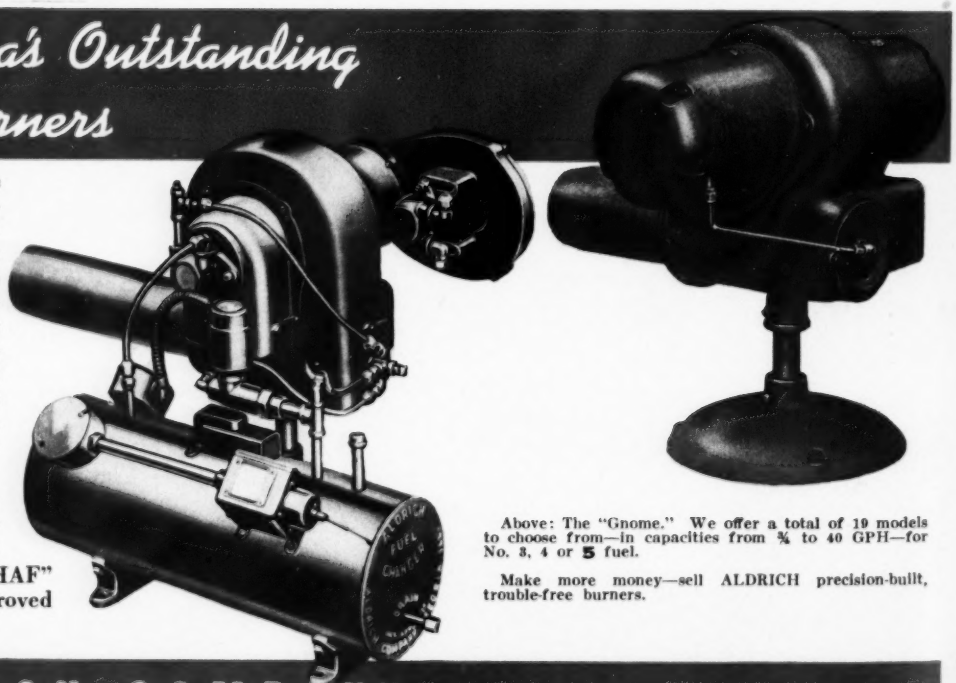
Write or wire for full dealer details.

America's Outstanding Oil Burners

From nothing to "The World's Largest Producer" in 4½ years! Approximately 1 out of every 9 burners made (11%) is Aldrich-built. The reason: better burners than can be had elsewhere—at less cost than others ask—and sold by better dealers.

YOU can be a better dealer by selling ALDRICH burners.

(At right, our "SAV HAF"—Underwriters Approved for No. 5 oil.)



Above: The "Gnome." We offer a total of 19 models to choose from—in capacities from ¾ to 40 GPH—for No. 3, 4 or 5 fuel.

Make more money—sell ALDRICH precision-built, trouble-free burners.

ALDRICH COMPANY • PEORIA, ILLINOIS

World's Largest Burner Manufacturer

Nibco presents:

RUSSELL SHOFF

SINCE 1929 HIS SKILL AND EXPERIENCE HAVE CONTRIBUTED TO NIBCO QUALITY

√ You can depend on fittings by NIBCO because they are the result of long experience in serving the plumbers of America. NIBCO pioneered copper fittings for plumbing, and both the company and its individual employees thus have years of knowledge that comes from actual doing.

Take Russell Shoff, for instance. He was an experienced tool and die maker when he came to NIBCO in 1929, and for the past ten years he has been actually shaping NIBCO fittings through the dies and tools he has made. In every department NIBCO represents this substantial kind of background.

All of which means that you, as a plumber, gain the services of experienced men—the kind of men you yourself would like to hire—whenever you buy NIBCO products. You know what that means in satisfaction to your customers and profit to yourself.

NORTHERN INDIANA BRASS COMPANY • ELKHART, IND. NIBCO

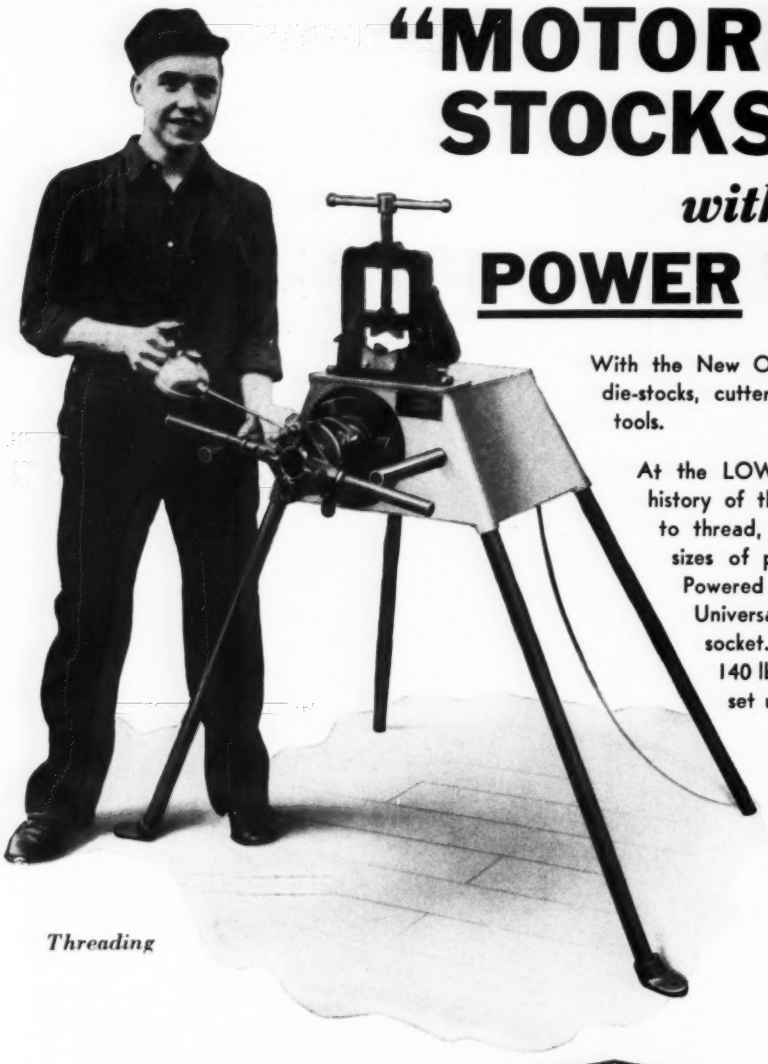
"MOTORIZE YOUR STOCKS and DIES"

with the new

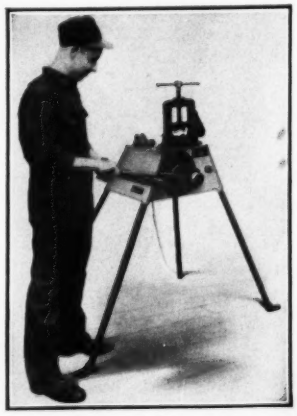
POWER VISE STAND

With the New OSTER POWER VISE STAND, your regular die-stocks, cutters and reamers are converted to POWER tools.

At the LOWEST PRICE of any pipe machine in the history of the industry, this new machine enables you to thread, cut-off, ream and turn up fittings on all sizes of pipe up to 2", at the snap of a switch. Powered by the famous ½ H. P. Black & Decker, Universal Motor it operates from the ordinary light socket. The New Power Vise Stand weighs only 140 lbs. and it can be taken direct to the job and set up in less than five minutes.



Threading



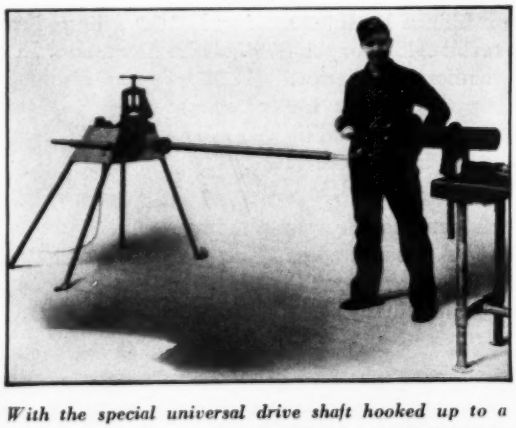
Cutting-off

Investigate the *extra* profits and convenience this new *POWER* pipe machine can give you. Get the LOW PRICE and details from us or your jobber, today.

OSTER THREADING EQUIPMENT WILLIAMS

The OSTER Mfg. Co.
2045 E. 61st Pl.
Cleveland, O.

Out of the shop—onto the truck—off to the job.



With the special universal drive shaft hooked up to a geared die-stock such as the OSTER No. 44, the POWER VISE STAND will thread pipe up to 6" diameter.

Turning-up fitting

HERE'S A QUALITY PARTNERSHIP THAT'S ALWAYS READY TO WORK FOR YOU WHENEVER YOU NEED STEEL PIPE

Your local distributor of J & L Standard Pipe is a man who takes pride in his quality way of doing things. In dealing with him you are sure of getting the kind of service that helps you make money. At the same time you enjoy a pleasant business relationship with his reliable organization. He aims to guarantee every one of his customers complete satisfaction and that's why he sells only goods of highest quality—and, therefore, J & L Standard Pipe made of J & L Controlled Quality **(CQ)** Steel.

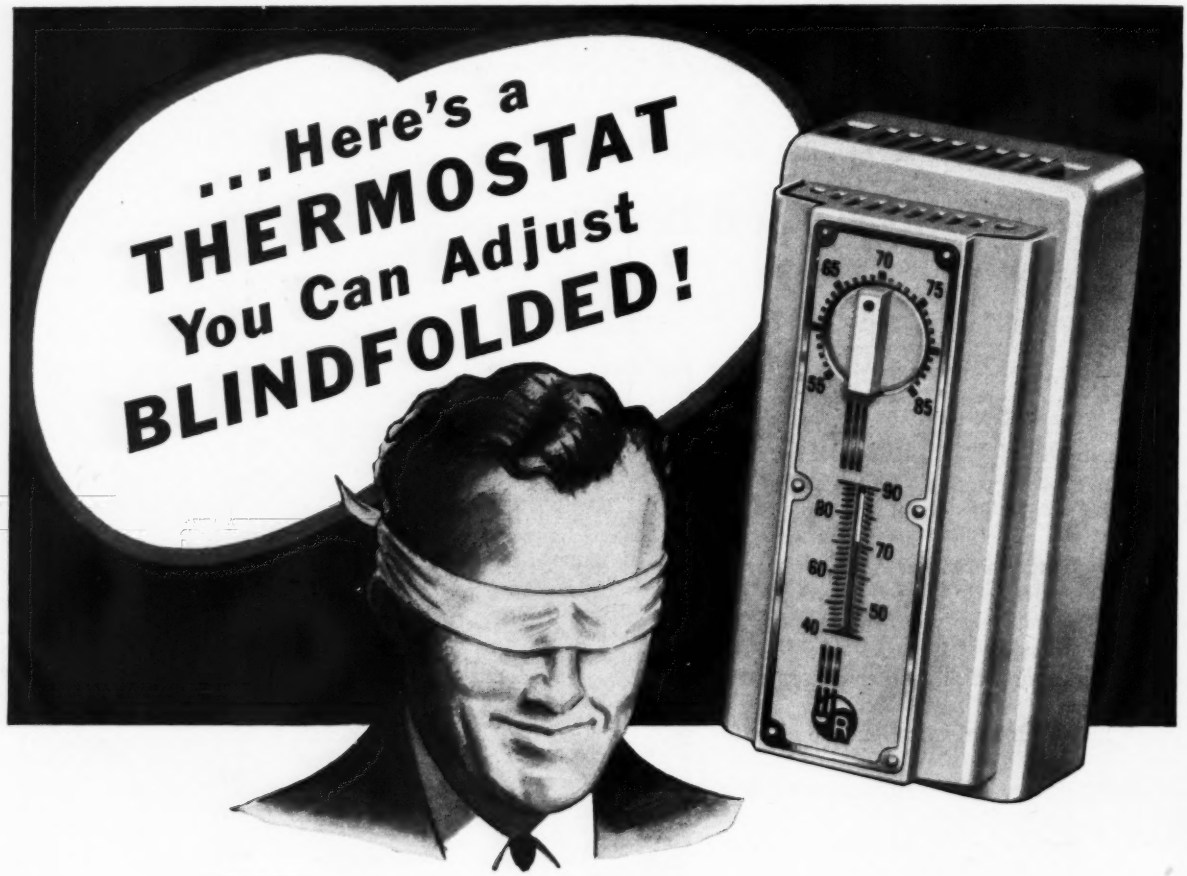
Whenever you need steel pipe, get the greater satisfaction of ordering from your J & L Standard Pipe jobber. Look for him listed under "Pipe" in the classified section of your telephone directory. *Ask him for a copy of our handbook SP-4.*

JONES & LAUGHLIN STEEL CORPORATION

AMERICAN IRON AND STEEL WORKS

PITTSBURGH, PENNSYLVANIA

J & L—PARTNER IN PROGRESS TO AMERICAN INDUSTRY



THE "Touch Temperature Adjustment" incorporated in the 130 Series makes thermostat setting far less bothersome on the many occasions when the thermostat is difficult to read.

The Series 120 Thermostats are also outstanding in providing "Three Point Suspension" of the chassis in the thermostat case, which is a sure guarantee against improper thermostat operation due to uneven wall surfaces.

"A Finer Magnetic Structure" as the highly stable long life Alnico permanent magnet used produces a more powerful magnetic attraction for the contact arm than the conventional type magnet and thus assures many years of continuous accurate and precise thermostat operation.

SURFACE HOT WATER CONTROL
"Hydraulic-Action"

This hydraulic-action control offers all the advantages of simple inexpensive installation without any sacrifice in performance. The more than twenty inches of actual contact between the hot water riser and the sensitive element provide ample contact surface to obtain rapid response by the thermostat to changes in the water temperature.

DUAL IMMERSION HOT WATER CONTROL
"Hydraulic-Action"

This exclusive dual type is two separate hydraulic-action controls mounted in a single three quarter inch well. Thus a single boiler tapping serves to mount two controls for summer-winter operation or for forced flow system control thereby bringing all of the control mechanism together for ease of adjustment and reducing the cost of installation by almost one half.

WHITE-RODGERS ELECTRIC CO.
1213 CASS AVENUE • ST. LOUIS, MO.
CONTROLS FOR REFRIGERATION
HEATING AND AIR CONDITIONING

HYDRAULIC
ACTION CONTROL

Let's look inside a . . .

TYPE C KEWANEE

See why it's the LARGEST SELLING BOILER for HEATING BIG BUILDINGS

The "sawed-in-two" Type "C" Kewanee which has attracted so much attention in the Kewanee exhibit at the New York World's Fair, graphically illustrates why this boiler has become the *largest selling boiler for heating big buildings.*

Note Specially These Features:

√ CORRUGATED CROWN SHEET
adds extra effective heating surface while rugged strength is imparted by the massive ridges of the corrugations. Note also that the arched crown sheet is right-side up . . . self cleaning and self draining.

√ BIG, HIGH FURNACE
essential to complete combustion is provided in every Kewanee Type "C".

√ FLUES WITH SUFFICIENT AREAS
to handle the expanding volume of hot gases as they travel back and forth while the heat is being transferred to the water.

√ LARGE, UNBROKEN WATER CONTENT
ample in volume to absorb the rapidly created heat and keep itself in active circulation.

√ PLENTY OF STEAM SPACE
insures a continuous flow of dry steam into the heating system.

KEWANEE BOILER CORPORATION
KEWANEE, ILLINOIS
Branches in 64 Cities—Eastern District Office: 37 W. 39th St., New York City
division American Radiator & Standard Sanitary Corporation

Ask our nearest office for complete data on the Kewanee boiler best suited for heating the building on which you are figuring.

Thanks:

I appreciate the many fine things I get from the magazine each month, especially the dope on all the new things in our field. Herman J. Larken, St. George, Utah

Between Ourselves

Ideas and Ideals . . . which make up . . . this Issue

50th Anniversary

To the Editor:

Greetings and congratulations to DOMESTIC ENGINEERING on your golden anniversary. As an organization you have gone far in the development of health and sanitation. Your opportunity for service is greater than ever. Your accomplishments of the past will be small as compared with what lies before you.

The Women's Auxiliary of the National Association of Master Plumbers has been greatly assisted by the publicity you have given this organization on your Women's Page. From a very small group twenty-one years ago to the largest women's organization of its kind in the United States is a great step. Our membership includes thousands of wives, daughters, and mothers of master plumbers.

May I quote Henry Blank, president of the N. A. M. P.: "There is no man in the association who is so big that the Women's Auxiliary is not a good place for his wife." This expresses the attitude of the master's association to the auxiliary.

DOMESTIC ENGINEERING has succeeded because of faith in itself, and in all the branches of the plumbing and heating industry.

Mabel B. Doench,
Past Nat. Pres.,
W. A., N. A. M. P.

● ● ●

To the Editor:

I wish to express my sincere congratulations to you on the occasion of your 50th Anniversary and trust that at the end of the next 50 years you will still be fighting the battles of the plumbing and heating contractor.

John Cuneo,
Chattanooga, Tenn.

● We wish to assure Mr. Cuneo and all of the readers of Domestic Engineering of our determination to continue with our sleeves rolled up.—Ed.

Editorial Award

To the Editor:

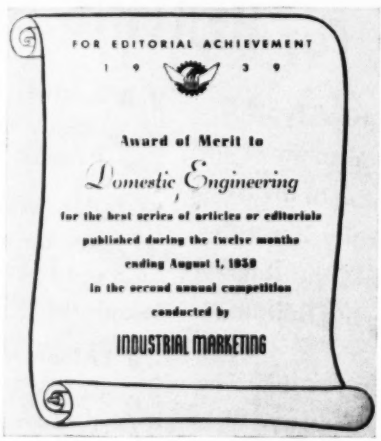
Just a note to congratulate you and DOMESTIC ENGINEERING on winning the N. I. A. A. and Industrial Marketing award for the best series of editorials.

Once in a while some of our men in the field question our advertising schedules. Such an achievement by you people justifies our choice of your book as a medium to carry the Dole message.

Again congratulations—and best wishes.

Stuart G. Phillips, Asst. Sec.,
The Dole Valve Company.

● The award to which Mr. Phillips refers is reproduced below. At the right, O. T. Carson, president of Domestic Engineering, is shown receiving this certificate during the recent N. I. A. A. convention in New York City. The



"Winning . . . award for best series of editorials . . ."

honor which this implies is nothing compared with the satisfaction we have received from our editorial efforts to serve our entire industry, which efforts were the basis for the award.—Ed.

● ● ●

Reader for 35 Years

To the Editor:

We wish to congratulate you on the 50th anniversary of the publication of DOMESTIC ENGINEERING.

I have been a reader of your publication more than 35 years. In this time I have secured much information and knowledge from it. . . . The personnel of your organization has always kept abreast of the times and assumed a constructive and conservative policy.

Joseph G. Hayes, Indianapolis.

"O. T. Carson . . receiving certificate"

● ● ●

Explosions

To the Editor:

We have noted with deep appreciation your broad and unbiased editorial policy dealing with the ever changing problems of the plumbing and heating industry. We wish to express our thanks, to your editorial staff, for publishing in the last issues of the "News" and DOMESTIC ENGINEERING, the photographs of our demonstrations, which we believe to be the first scientific effort made to ascertain the causes and effects of hot water storage tank explosions.

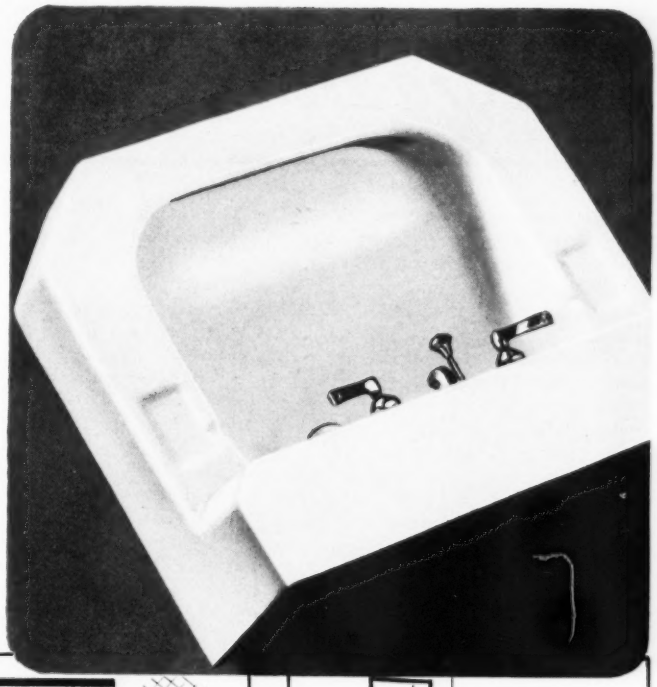
Hot water tank explosions are not rare; on the contrary, if publicity were concentrated and published, the total of death and destruction resulting from them would be so appalling that uniform and stringent protective laws would be set up, educational data supplied the industry, and home owners made conscious of the potential danger.

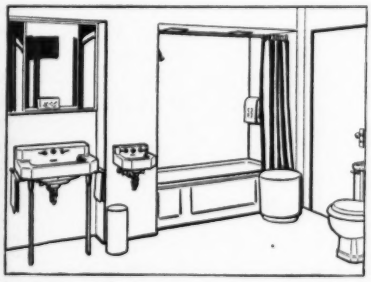
As an old and established manufac-

(Continued on Page 42)

A WINNING LINE FOR MASTER PLUMBERS

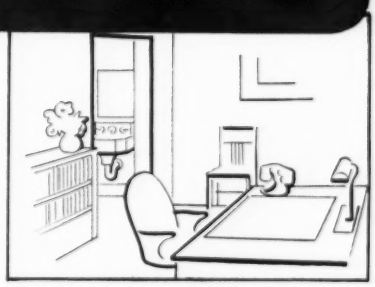
Kohler Shelf-back Lavatories in Six Models, Nine Sizes, for a Wide Variety of Requirements



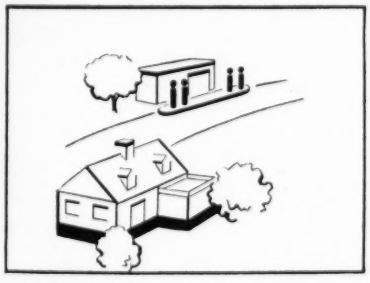


GRAMERCY—For homes and apartments which can use 22x18″ and 24x20″ sizes. Vitreous china.

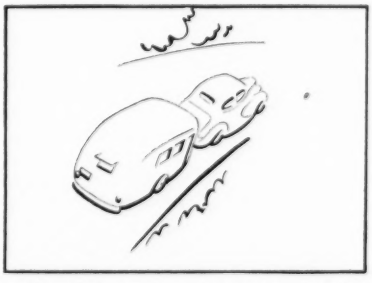
STRAND—Narrow, yet gracefully proportioned. For Lavettes and small rooms. 20x14″, 26x15½″. Vitreous china.



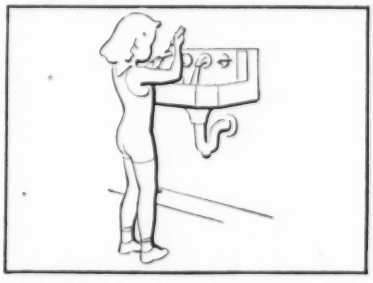
CUB—A miniature model only 12x12″ for private-office washrooms and extra-small Lavettes. Vitreous china.



HAMPTON—Popular for small, modest homes, filling stations, public buildings. 19x17″, 22x19″. Enameled cast iron.



TRAVELER—The small 13x13″ enameled cast-iron model. For trailers, tourist camps, small "two-by-four" washrooms.



WALCOT DENTAL—For brushing teeth at home in a sanitary manner. Used more each day. 12x12″. Vitreous china.

NAME the lavatory requirements and it's a sure thing that you can solve the problem with a Kohler shelf-back. There are large ones, small ones, narrow ones for crowded quarters. Some are made of vitreous china, others of durable enameled cast iron.

● All have *one* thing in common . . . a full-length shelf, wide and unobstructed. Mixing fitting is on the back where it is most accessible, and since operation of valves takes place directly over the basin, drippings from wet, soapy hands fall back into the basin, thus keeping the shelf clean and dry.

Order a complete selection of Kohler shelf lavatories for your fall showing, and ask for a handsome two-color lavatory poster for your window and showroom. Kohler Co. *Founded 1873.* Kohler, Wisconsin.

KOHLER OF KOHLER

Kohler products are sold only to Master Plumbers through wholesalers

Between Ourselves . . . .

(Continued from Page 40)

turer of safety devices for the avoidance of these damaging explosions, we have felt it our duty to pioneer in the field of scientific investigation and obtain factual data on this very technical subject. Our demonstration work, even in its early stages, has proved that these disasters can be prevented and that overheating is the direct cause and not excessive pressure. Therefore, to prevent overheating, care must be taken in the selection of the proper relief valve. The control of both pressure and temperature is the solution and great emphasis should be laid on the prevention of excessive temperatures.

Plain pressure relief valves are shown by our tests to be inadequate for hot water tanks, although they have a very definite need on certain types of installations to protect against excessive pressure only.

We are continuing our field test work, studying the problems from the scientific angle, hoping that by so doing we may, through such mediums as yours, widen the factual knowledge of the subject and ultimately aid in bringing full prevention of such waste.

B. E. Horne, President,
Watts Regulator Company.

● The article in our September issue, referred to by Mr. Horne is a part of a continuing editorial program to emphasize and reemphasize the importance of adequate protection for water heating. Additional articles will appear at regular intervals to add weight to those already published.—Ed.

● ● ●

Enthusiasm

To the Editor:

Before my enthusiasm overcomes me completely I wish to apply for an extra copy of DOMESTIC ENGINEERING for October. Please send me an extra copy bound in the most substantial cover your genius is capable of devising and I will remit promptly with apologies.

It is the cover on the September issue that has lighted my fires of hopes and aspirations. Here I was thinking I was 50 years ahead of my time and then discover that you are three jumps ahead of me. Thanks a lot. I rest easier. I prefer to trail along behind a good leader, rather than poke along so far in front that I am lonesome. . . .

I rub my eyes and read it again: "Our industry's services are taken for granted by the American public. Even many among us build on our traditions without understanding them."

You never really got down to brass tacks before. You will never rise to greater heights than this. This is the kernel of the nut. . . .

You say, "A reappraisal is needed." I would say that it is just simply an appraisal. The first one has not yet been made. We have the "makin's" of the best thing in this fair land of the free and home of the bathtub. You are the first ones who have shown any real indication of having broad vision. I salute you. . . .

A. C. Hayward,
Stoneham, Mass.

● ● ●

Old Timer

To the Editor:

Congratulations on your 50th anniversary—50th wedding anniversary because you are wedded to the plumbing and heating craft. I wonder what fifty more years will bring.

It seems strange, when I look back and think of some of the old timers in the days when my dad, Bert Dale, started in the plumbing business some seventy years ago, or even when I began my own work in plumbing as a lad of fourteen, at the turn of the century. A plumber in those days had to be a lead worker and the finer his wiped joints looked, the easier it was for him to get a job. The plumber's ditty bag (washers and parts) wasn't very large then. A few Fuller balls and compression packings made up most of it.

My father learned his trade in England. For seven years he worked as an apprentice, and during most of that time received no wages. The ten-hour working day was broken by the serving of cocoa each morning and afternoon.

Dad learned lead burning, which was called chemical plumbing, and house painting as well as actual plumbing work. When he came to this country he opened his own plumbing shop in Milwaukee, Wisc., in the 1880's.

In the old days plumbers didn't have to go out after the business the way they do today. People came to the plumber when they wanted work done, and everything was on a cash basis. Plumbers were even able to choose their customers because there was so much work to be had. In 1891 Dad had work enough for 20 men, and paid them $1.75 a day. Since women had not yet invaded the offices, all bookkeeping was done by men.

A large percentage of those early plumbers had no schooling and couldn't write their own names. They had to make a cross on their checks to endorse them. Many of Dad's customers were Polish immigrants, who depended on their parish priest to take care of financial transactions for them. Through one of his Polish workers, Dad established a contact with one of these parish priests. The pastor turned over to Dad many of the installations in the residences of his parish—sometimes four complete blocks on both sides of the street. As the work progressed, people would turn over part of their earnings to the priest, who acted as an agent to pay for the plumbing.

At the turn of the century, salesmen were not needed by plumbing contractors. Few of them were employed by manufacturers to sell equipment to plumbing shops. A popular salesman could sell a large order of goods and did not bother with small purchase orders as he does today. Often he acted as advisor on plumbing problems.

Dad made a number of inventions still used today. One of them is the Dale Ball Cock; another is the Dale Nipple, a screw thread to a calk joint used for connecting cast iron and steel piping. He also made a split pipe rest that could be put on after the piping was installed.

Shop windows were never opened to full view of passersby as they are today, and plumbing establishments were not dressed up to attract women customers. Sash curtains covered the whole width of the window, with one or two display items in front of the curtains. Perhaps a gas mantle would be shown, or a high tank ball cock, a lead bend, or a lead trap.

I remember Dad displaying a toilet bowl seat in his shop window during the early part of the century. The neighbors got so peeved that a policeman on the beat ordered it taken out. Imagine such a thing happening today!

Though the past was quite colorful, I am deeply interested in the present, and what the next fifty years will bring. I'm looking forward to future issues of DOMESTIC ENGINEERING to keep up with these new developments.

James Dale,
Racine, Wisconsin

Penberthy

A DISTINGUISHED NAME . . .
A DISTINGUISHED PRODUCT

Constructed of Copper and Bronze Throughout

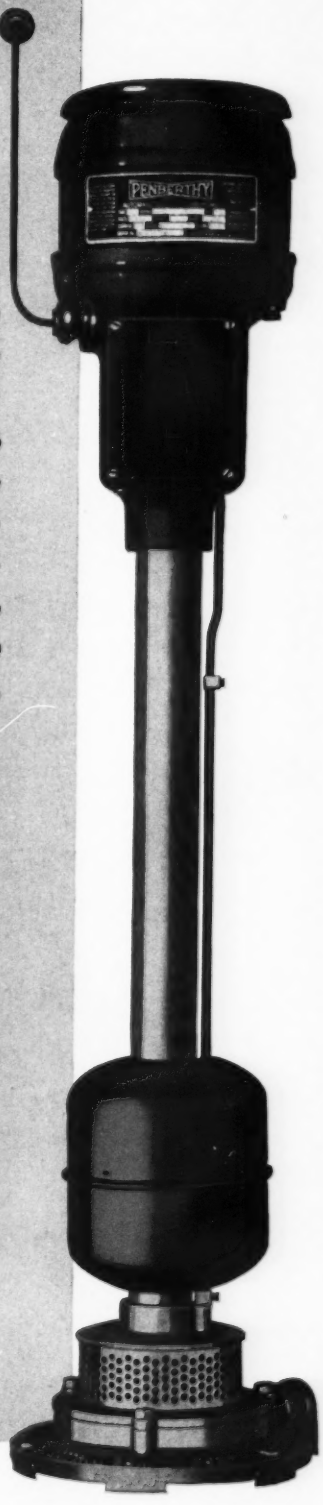
THE name "Penberthy" has been distinguished for fifty-two years as representative of highest quality products.

Penberthy Automatic Electric Sump Pumps are distinguished for their dependability and long life wherever seepage water accumulates.

Penberthy Automatic Electric Sump Pumps are available in six sizes.

JOBBERS EVERYWHERE CARRY PENBERTHY PRODUCTS IN STOCK

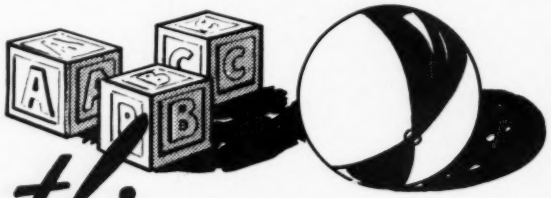
PENBERTHY PRODUCTS



PENBERTHY INJECTOR COMPANY

Manufacturers of Quality Products Since 1886

Canadian Plant, WINDSOR, ONTARIO DETROIT, MICHIGAN



SELLING *this* LINE . . .
LIKE CHILD'S PLAY

● Selling is easy when there's nothing unfamiliar to explain. In the Dole All-Star Line there are complete sets of valves for automatic or hand fired systems—whether open or "vacuumized." There are Dole Air and Vacuum Valves for convectors, radiators, unit heaters, mains—for every venting situation.

You face many variables on today's jobs but once you realize that each valve in the Dole Line has been picked for star performance in its special position—and the line-up is complete from a sales standpoint, then your venting worries are settled—at a neat profit. Just push the right valve across the counter, or write it in the specifications and you can swear it will be right. The profit is worth while, so take it—and take it EASY with Dole.

THE DOLE VALVE COMPANY
1901-1941 Carroll Avenue, Chicago, Illinois
Offices and Representatives in all Principal Cities

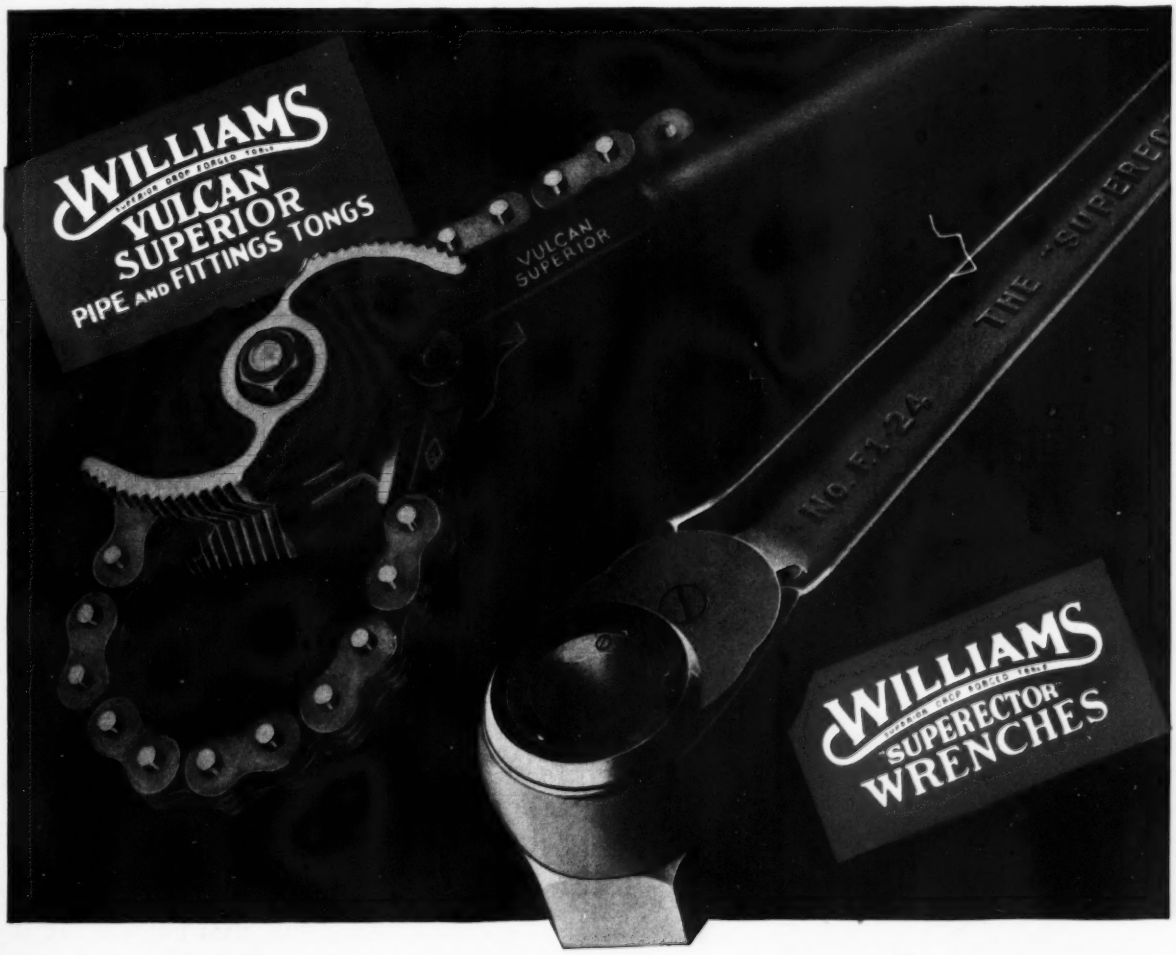
Dole 1A Vari-Vent—spectacular performer in balancing radiators of automatically fired systems.

Dole 33 Angle Air Valve—a fast mover and priced to win

Dole 3 Air Valve—For general use on radiators of gravity systems—Good looking, attractively packaged—Value at a glance and good for years of service.

the ALL-STAR LINE
DOLE *Air and Vacuum* VALVES

TOPS IN TURNING POWER



"VULCAN SUPERIOR" TONGS

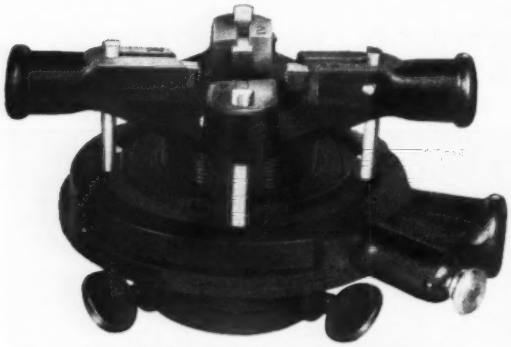
When you want to turn, or hold, pipe or fittings—here's the answer. A single tong that handles BOTH—without adjustment or change of a single part. Yes, the "V" recessed jaw provides a slip-proof grip that will tighten a leak-free joint or start a "frozen" thread without marring the fitting. Made in seven sizes—with Jaws that reverse to provide extra service life—for pipe and fittings, 1/8 to 12 inches.

WILLIAMS' "SUPERECTOR"

When you want real "turning power" for big nuts—hex or square—the "Superector" is your answer. This powerful reversible-ratchet wrench will turn just about anything with threads on it. Socket holes extend clear thru so you can tighten a nut all the way down on any length of bolt. Made in five sizes—all with Quadruple Pawls and *drop-forged* handle—from 24 to 53". Both Hex and Square Sockets—1 to 4-5/8 inches. 1-593

Ask your supply house or write for literature

J. H. WILLIAMS & CO. HEADQUARTERS FOR **225 LAFAYETTE ST., NEW YORK**



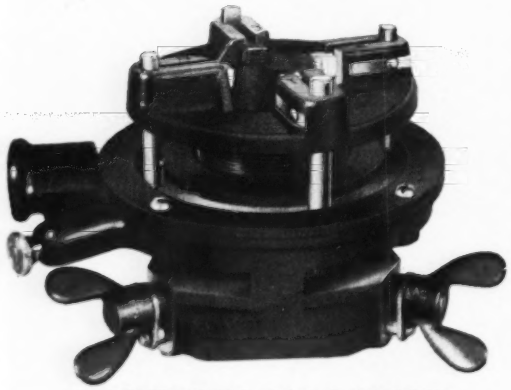
"TOLEDO" NO. 1A RATCHET THREADER. 1" TO 2" PIPE.

"TOLEDO"

ONE INCH TO TWO INCH RATCHET THREADERS

You well know the durability and easy cutting "TOLEDO" No. 1A the leading 1" to 2" threader for 35 years. Finest of materials and workmanship. Four sets of dies—one for each size pipe—2 inch made from high speed steel. Easy operating receding die principle. The finest low cost 1 to 2 inch ratchet threader.

Net Price $11.25

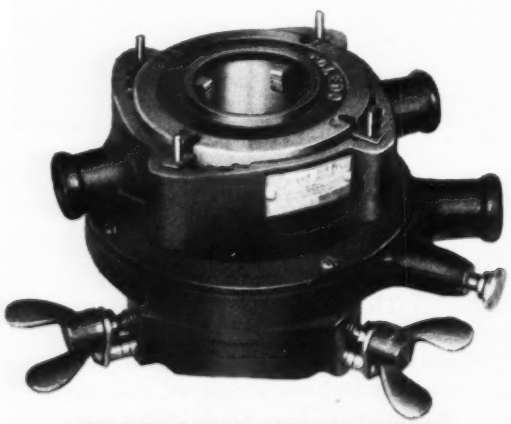


"TOLEDO" NO. 1BR RATCHET THREADER. 1" TO 2" PIPE.

FOUR SETS OF DIES NO BUSHINGS

The "TOLEDO" No. 1BR has all the desirable features of the No. 1A plus the adjustable rear guide. Three chuck jaws each with a gripping surface of $1\frac{5}{8}$" x $\frac{3}{4}$" operated by large wing-head thumb screws with size-marked guide bars. Long life, accurate, easy centering. No wobbling or cocking on the pipe—good threads straight on the pipe are assured making for more accurate alignment on installations.

Net Price $15.00



"TOLEDO" NO. 10BR RATCHET THREADER. 1" TO 2" PIPE.

ONE SET HIGH SPEED STEEL DIES, NO BUSHINGS

The "TOLEDO" No. 10BR uses but one set of high speed steel dies to thread all sizes of pipe 1" to 2" plus the same type of adjustable rear guide as the No. 1BR. No loose parts—strictly a self-contained tool. Positive die adjustment. There are no cams to become worn and die adjustment is simple, positive and quickly accomplished by slipping the dies into the proper series of tapered steps. One of the finest tools of its type.

Net Price $15.00

All Prices F. O. B. Toledo or Distributor's Stocks

THE TOLEDO PIPE THREADING MACHINE CO.

TOLEDO, OHIO **NEW YORK OFFICE, 72 LAFAYETTE ST.**

"TOLEDO"

YOU'LL DO BETTER WITH A "TOLEDO"

Our Industry

October, 1939

Here Are The Answers . .

THE American public has come to accept, as a matter of course, the many vital services rendered by our industry. Beyond this, the American public, from time to time develops a questioning attitude as to the reasons for certain safeguards and practices upon which our industry has been developed. Even within the ranks of our industry, there are many who have built upon our traditions without taking time to understand their significance.

The major portion of this 50th anniversary issue of DOMESTIC ENGINEERING, in the following pages is devoted to a reappraisal of our industry as a whole, and of the component factors upon which its successful functioning is based; factors which have been evolved over a period of years; factors which are present today only because of a thorough justification of their existence.

The following pages present twenty basic divisions and functions of our industry. The story has been obtained from members of our industry. Comments on specific subjects were solicited from individuals and sources considered well qualified to discuss the subjects assigned to them. Editorially, we have merely assembled the material and have prepared it in accordance with space limitations. Naturally, the insight into our industry and the understanding of the relationships existing among the twenty basic divisions herein treated, all of which have accumulated and matured during DOMESTIC ENGINEERING'S 50 years of service to our industry, are reflected in the following pages.

Editorially, we have endeavored to take the American public, as typified by the well known Mrs. Jones, on a tour of our industry.

The stage is set. Mrs. Jones is all attention. Let's start by an introduction which answers the question, "What is a Contractor?" See page 54 . . . . . .

". . . The American Public, typified by the well known Mrs. Jones . . . . . ."

How Will War Affect U S

New factors which are affecting business in our industry are presented against a background of previous wartime economic trends

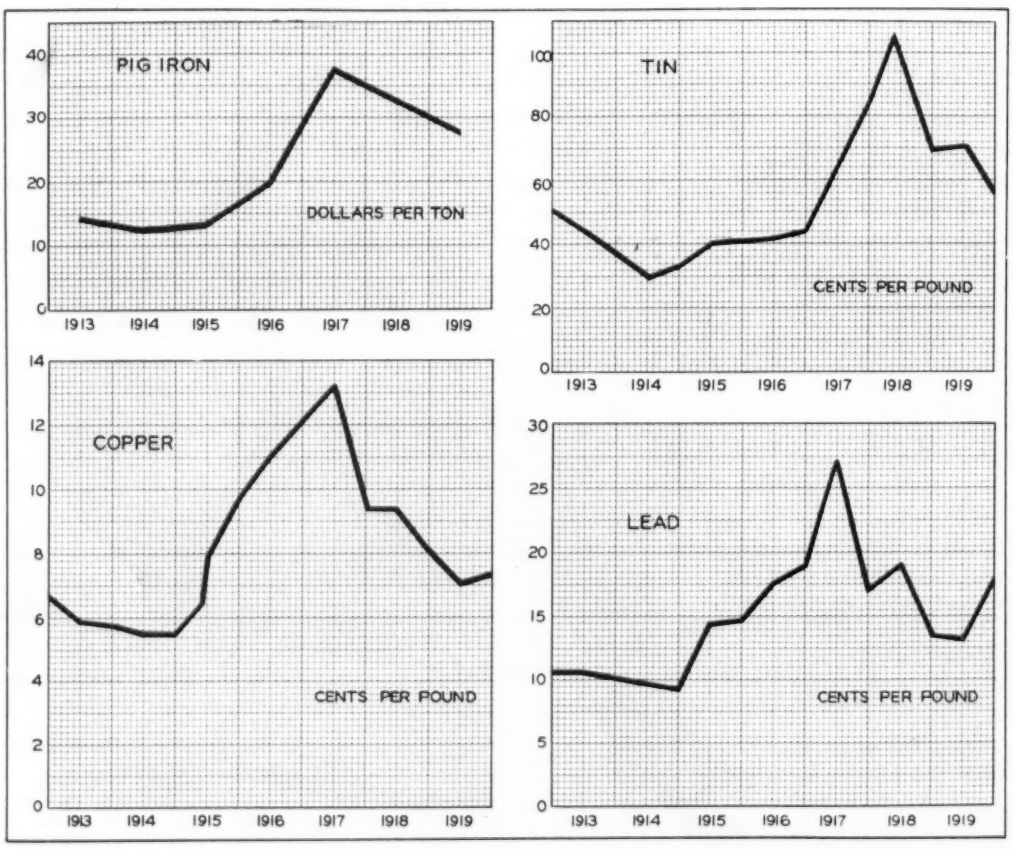
"HOW will the war affect business in general? How will it affect our industry's business?" The right answers to these questions are vital to contractors, manufacturers and wholesalers alike.

There are three logical ways to look for these answers. The first is to appraise carefully all the factors now known. The second is to seek a comparable period in our history (the World War era) and draw legitimate parallels. The third and best is to combine these two.

Anyone who studies the news reports of August, 1914 and September, 1939 will be struck by remarkable similarities in the foreign news and viewpoints. He will discover that a 1914 report could practically be reprinted today, with only the names of persons and a few places needing to be changed. Substitute "Hitler" for "the Kaiser;" "Chamberlain" for "Asquith;" "Poland" for "Belgium," and you have it. Italy wavered then, as now; France is playing somewhat the same role as before. The same propaganda techniques (excepting radio) are now used.

Underlying this perhaps superficial resemblance are the basic similarities of economic and geographical factors which furnish the reason for reprinting here excerpts from DOMESTIC ENGINEERING issues of 1914-1918. In choosing for himself, which parallels he should consider as possible indications of future trends, the reader should keep in mind the following important differences between the two periods:

a. Controls over money, banking, stock and commodity markets are today much firmer than they were in 1914.

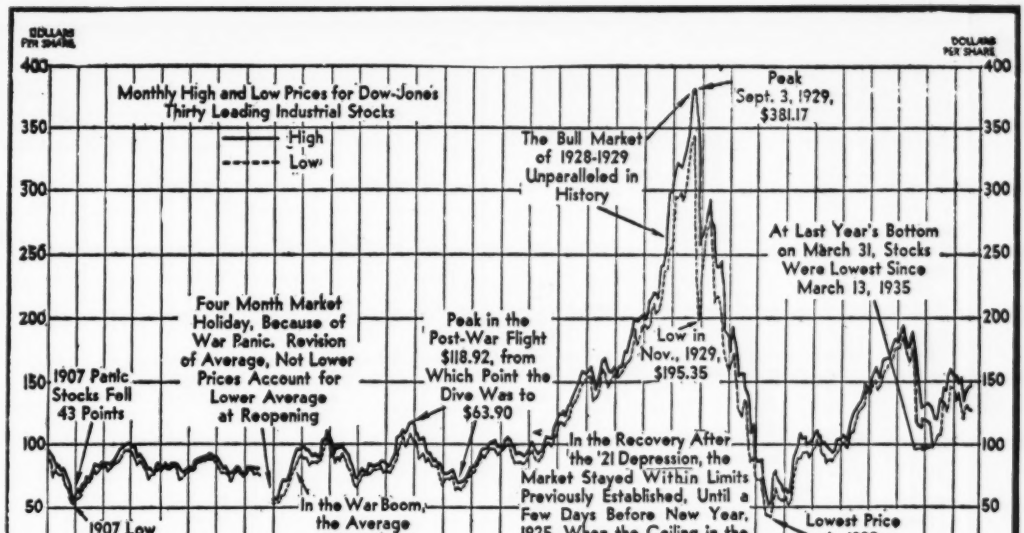


Extreme left, graph shows the trend of pig iron prices during the World War period

Left, tin reached a maximum price of $1.05 per lb. in the spring of 1918

Extreme left, the price of copper sagged slightly during 1914, then rose rapidly to more than 13 cents per lb.

Left, lead followed the general trend—first slightly down, then sharply up. At the present time practically all metal prices are on the uptrend. These graphs of metal prices are compiled from data furnished by "Daily Metal Trade"


DOLLARS PER SHARE
Monthly High and Low Prices for Dow-Jones Thirty Leading Industrial Stocks
High
Low
Peak Sept. 3, 1929, $381.17
The Bull Market of 1928-1929 Unparalleled in History
At Last Year's Bottom on March 31, Stocks Were Lowest Since March 13, 1935
Four Month Market Holiday, Because of War Panic. Revision of Average, Not Lower Prices Account for Lower Average at Reopening
Peak in the Post-War Flight $118.92, from Which Point the Dive Was to $63.90
Low in Nov., 1929, $195.35
1907 Panic Stocks Fell 43 Points
In the Recovery After '21 Depression, the Market Stayed Within Limits Previously Established, Until a Few Days Before New Year, 1925, When the Ceiling in the Post-War Boom Was Penetrated
1907 Low Nov. $51.81
In the War Boom, the Average Went from $54.72 to $110.15
Lowest Price in 1932 $40.56
400
350
300
250
200
150
100
50
0
1907 '08 '09 '10 '11 '12 '13 '14 '15 '16 '17 '18 '19 '20 '21 '22 '23 '24 '25 '26 '27 '28 '29 '30 '31 '32 '33 '34 '35 '36 '37 '38 '39

Fluctuations in the monthly average price of 30 leading industrial stocks during the period from 1907 to the present are given in the chart at the right. Chart reprinted from "Chicago Tribune" by special permission

At the bottom of the page, this chart, continued across the bottom of the next three pages, traces business conditions from 1790 to the present. War periods and corresponding curves of wholesale prices are shown in color. Chart furnished by Col. Leonard P. Ayres of the Cleveland Trust Co.

b. Our neutrality is now regulated by a statute which affects both the kind of goods which can be exported and the conditions of export.

c. Federal loans to countries which defaulted on war debt payments are prohibited by the Johnson Act.

d. Total commercial credits, security holdings and gold supplies of the belligerents in this country are somewhat smaller than they were in 1914. This reduction, however, is due chiefly to smaller German holdings. The combined French and English credits are approximately $8,500,000,000.

e. The United States is much more nearly self-sufficient in the matter of raw materials than it was in 1914.

f. The United States holds a much larger proportion of the world's gold stocks than it did in 1914.

g. The American public is better informed on world affairs and has behind it the experiences of World War I as a guide.

The following excerpts from DOMESTIC ENGINEERING will reveal the first business uncertainties at the outbreak of hostilities in 1914, the gradual recovery, the boom, and the reaction upon our entrance into the struggle:

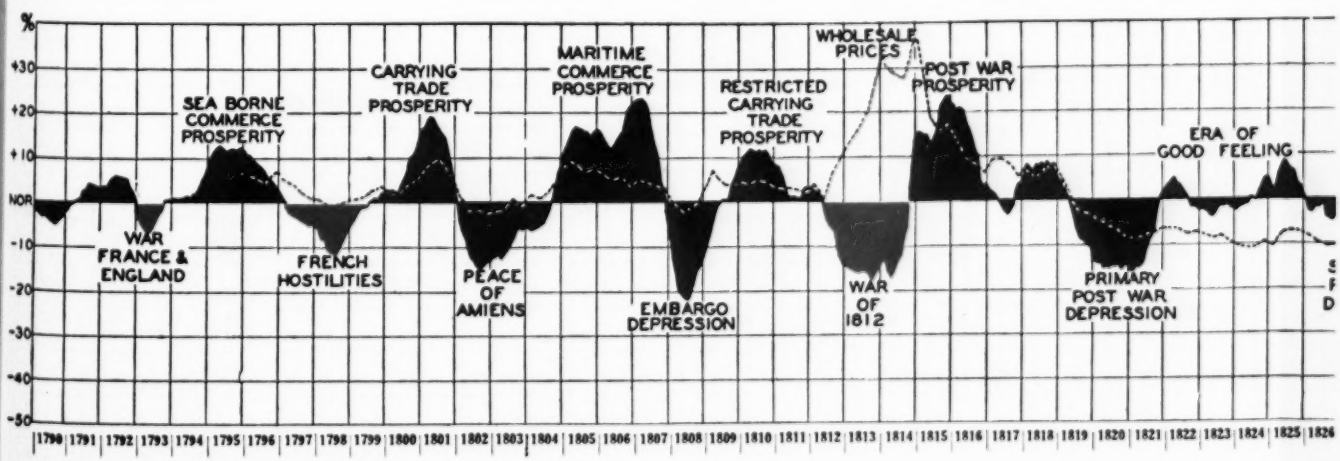
August 8, 1914—"Like a bolt from a clear sky came the news of what threatens to become the most disastrous war of modern times. . . .

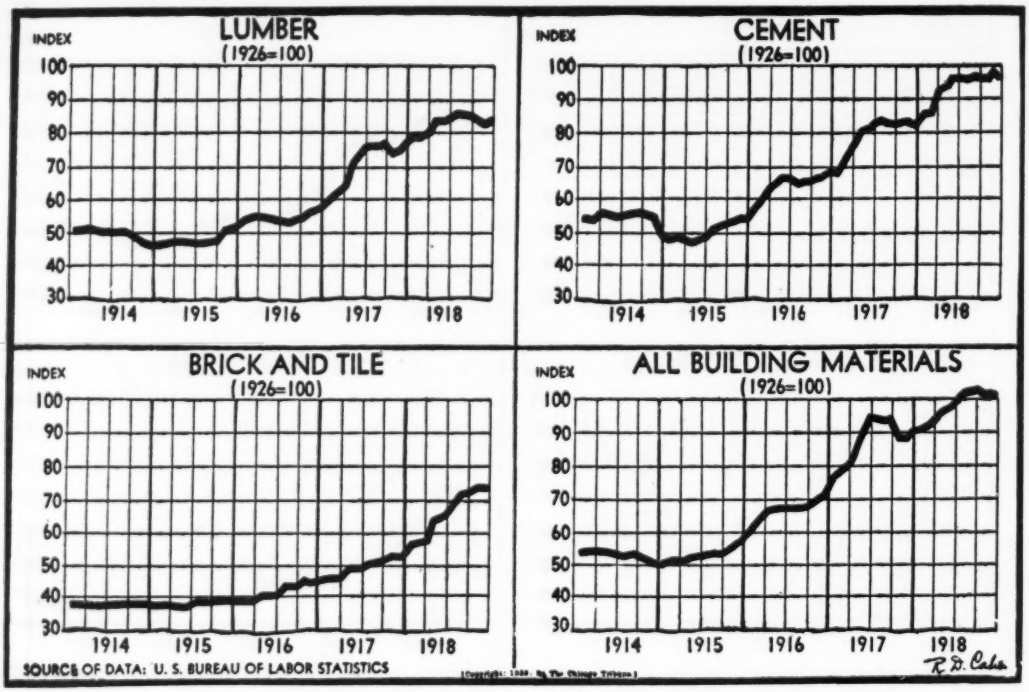
"After considering the horrors . . . we naturally wonder what the effect will be upon the industries of our own land. In spite of the unloading of American securities from abroad, our banking system has weathered the storm. . . . The money situation is wonderfully normal. . . .

"The predicament of Europe, with the merchant ships of her maritime countries driven from the seas by hostile fleets, may mean the entrance of the United States into the field of foreign commerce. . . ."

August 15, 1914—"The great war in Europe will probably bring economic advantages to the United States. Almost every industry will derive more or less benefit. Should the American people take advantage of the golden opportunity provided them by the outbreak of war, it will mean not diminished but increased prosperity for the United States."

November 14, 1914—"According to Secretary McAdoo . . . steady and marked improvement in financial conditions in the United States is reflected in the reports of the Treasury Department. . . . There





These four graphs show what happened to building material prices during the World War

The chart at the bottom of the page, continued from page 49, shows how business activity dropped during the first two years of the Civil War, then rose sharply till the war's end

is evidence of confidence being rapidly restored and that the financial situation is nearly normal."

November 21, 1914—(Statement by President Wilson)—"The war which has involved the whole of the heart of Europe has made it necessary that the United States should mobilize its (business and financial) forces in the most effective way possible."

November 28, 1914—"The pendulum is on the upward swing."

January 9, 1915—"The signs of promise during 1915 are reassuring. Captains of industry and leading financial lights are facing the coming months with the confidence that the business situation will be fully revived and splendidly stimulated, perhaps to an extent unequaled in American industrial history."

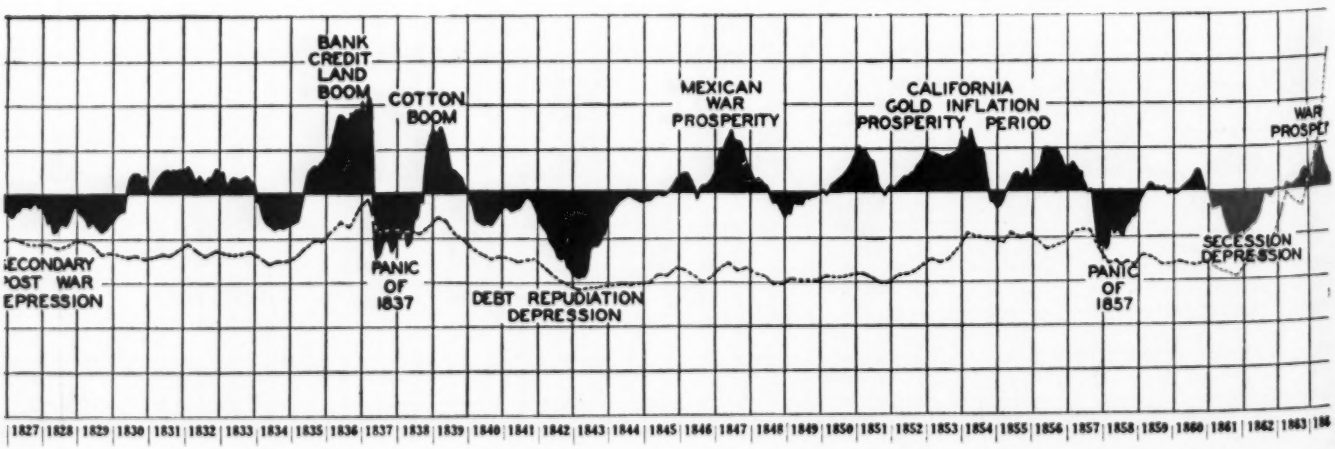
February 13, 1915—"The prices of plumbing and steam fixtures are now at the bottom. . . . Business is bound to be good, and it won't wait for the termination of the war to show tremendous improvement. This country is going to see the greatest prosperity it has ever seen by the time war ends, and it is excellent judgment to build and stock up in preparation for the time."

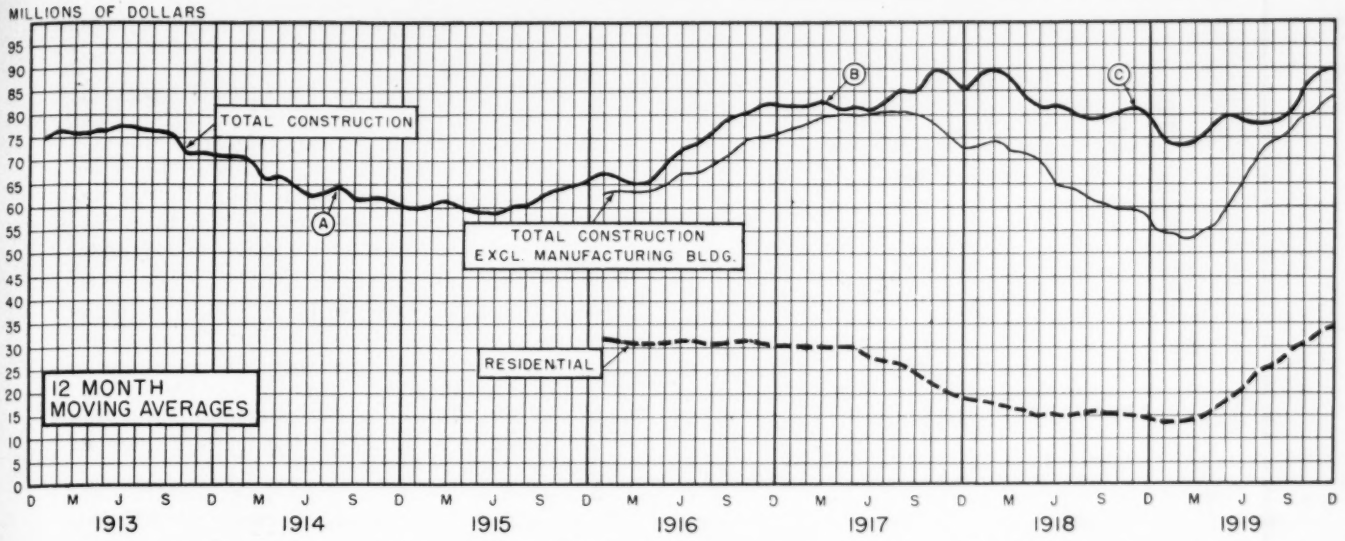
August 14, 1915—"The improvements since last August may justly be called remarkable. . . . America's turn has come. We are waking up. In short, we have become an international power. . . ."

December 25, 1915—"From every part of the United States come reports of increasing activity. The greatest bumper crop in history has been harvested. The iron and steel industries are working overtime; the railway terminals are clogged with goods, profitably moving; building operations are proceeding with assurance, and the industries supplying construction materials are feeling the breath of life. . . . The industrial change has come; it is here, and it has assumed a greater magnitude than most men dared to predict.

"According to reliable reports the last six months of the year ushered in an unprecedented reign of prosperity throughout the United States. The rapidly improving condition of activity in building operations throughout the country during the fall months of the year was a healthy indication of still greater improvement during the new year."

February, 1916—"Building reports of 110 principal cities for the month of January showed an in-


BANK CREDIT LAND BOOM
COTTON BOOM
MEXICAN WAR PROSPERITY
CALIFORNIA GOLD INFLATION PROSPERITY PERIOD
WAR PROSPE
ECONDARY OST WAR EPRESSION
PANIC OF 1837
DEBT REPUDIATION DEPRESSION
PANIC OF 1857
SECESSION DEPRESSION
1827 1828 1829 1830 1831 1832 1833 1834 1835 1836 1837 1838 1839 1840 1841 1842 1843 1844 1845 1846 1847 1848 1849 1850 1851 1852 1853 1854 1855 1856 1857 1858 1859 1860 1861 1862 1863



Construction followed the general business trend in 1914-18—first down, then up. Note that residential construction continued down even while total construction was going up in 1916-17. The dip in early 1919 represents the first post-war readjustment preceding the resumption of residential construction. Chart furnished by the Dodge Statistical Service

crease of 35 per cent over the same month last year."

October 7, 1916—"Nearly $145,000,000 has been distributed during the month of September in dividends and interest by business concerns throughout the country. This is an increase over September, 1915 of more than $25,000,000. These figures are undoubtedly a reassurance that the nation is still enjoying great industrial activity."

November 4, 1916—"Gold has been flowing into the coffers of the United States in a steady stream for over two years, until our stock of the precious metal has reached $2,625,000,000. . . . Scandinavian countries, which, like the United States, are suffering from too much prosperity, are refusing to accept gold except at a discount."

November 4, 1916—"Complete absorption of the output of the increased steel making capacity of the country is reflective of the unusual conditions that are prevailing and the insistent demand, domestic and foreign, for steel products. New capacity will come into play during the next two months, but orders have been accepted that will take care of the additional output."

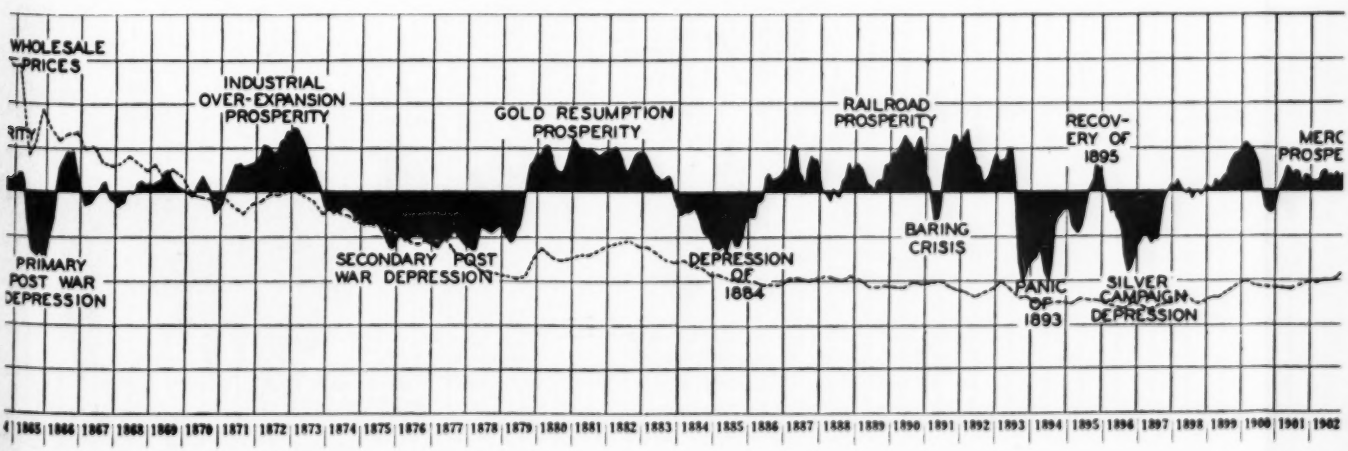
December 23, 1916—"It is fortunate that the United States has been able to desist from active participation in this frightful embroilment of the nations. Had it been otherwise, the present industrial status of the country at large would no doubt have decreased to proportions which might have given just cause for anxiety. The wealth of the nation at the close of 1916 far exceeds that of any year in the history of the republic."

December 23, 1916—"The closing year has been a remarkable one in the building trades, and in some respects the outlook is more cheering than it has ever been before. . . . Construction work has been conducted this past season most vigorously, with prices for materials unusually high. . . . The sentiment among the rank and file of the plumbing and heating crafts clearly indicates that the year has been a very active one, and that a majority in the trade has benefited from the prosperity which has reigned in so many branches of industry."

January 20, 1917—"December completed a remarkable year in building construction. For each month of 1916 there was an increase over the corresponding month of 1915. The activity reached its maximum last July, when the gain was 83 per cent."

February 10, 1917—(Report of annual convention of Ohio Assn. of Master Plumbers) "A resolution was passed by the convention commending the stand taken by President Wilson in the submarine controversy with Germany."

In reprinting the following excerpts from issues fol-


WHOLESALE PRICES
INDUSTRIAL OVER-EXPANSION PROSPERITY
GOLD RESUMPTION PROSPERITY
RAILROAD PROSPERITY
RECOV-ERY OF 1895
PRIMARY POST WAR DEPRESSION
SECONDARY POST WAR DEPRESSION
DEPRESSION OF 1884
BARING CRISIS
PANIC OF 1893
SILVER CAMPAIGN DEPRESSION
1865 1866 1867 1868 1869 1870 1871 1872 1873 1874 1875 1876 1877 1878 1879 1880 1881 1882 1883 1884 1885 1886 1887 1888 1889 1890 1891 1892 1893 1894 1895 1896 1897 1898 1899 1900 1901 1902

lowing our entry into the World War, DOMESTIC ENGINEERING *wishes to imply no parallel with present or conceivable future conditions. The following quotations are published here solely as a factual record.*

April 14, 1917—"We have entered the world conflict. . . . Organized business will now become the mainstay of the American land and naval forces. . . . Our industrial resources will be marshalled in tremendous force. . . .

"It is possible that large building operations will be curtailed during the war, but this no doubt will be largely offset by increased factory construction and miscellaneous operations."

May 5, 1917—"Business is being called upon to bear a large part of the burden of taxation, and it is equal to the occasion, if it be allowed to continue its regular course. The present hysteria, however, if persisted in, admonishing people to stop building or buying ordinary necessities, etc., will be a serious handicap."

June 9, 1917—(By a leading master plumber) "It is doubtful if very many of the plumbers and fitters throughout the country realize the advances in the cost of materials which have taken place during the past two years. Many comparisons have been made showing that some lines have advanced 60 per cent or 70 per cent or perhaps many times that."

June 16, 1917—"The continuance of building operations is an absolute necessity in the preservation of our economic life. 'Scarcity and high cost of material are the only good reasons for delays in ordinary construction work,' said a leading contractor recently."

June 16, 1917—"The building permits for May were about two-thirds the aggregate estimated cost of those issued in May, 1916, a decrease of 36 per cent. It looks like a distressing shrinkage of building operations. (But) the actual construction work of the present has not decreased. The figures for building and engineering work in May showed an increase of 20 per cent over May, 1916."

June 23, 1917—"The market for steel centers almost entirely at the present upon Government orders. There is but little of private enterprise visible, especially as to structural material for building purposes. Manufacturing enterprises influenced by Government requirements, directly or indirectly, for war purposes, have merely diverted certain lines into other channels, and the consumption of steel was never heavier in the history of the country."

June 30, 1917—"The American farmer is today conceded to be among the wealthiest of our citizens. . . . The country master plumber will now have an unparalleled opportunity. The war has really made the world dependent upon the man who tills the soil, and in a sense the plow and the hoe are mightier than the cannon and the musket. . . .

"The farmer, waxing fat upon his profits from the 1917 crops, will be possessed of excess wealth suitable for investment, and it will be up to the plumbing and heating contractor to demonstrate the wisdom of investing in plumbing, water supply and heating systems."

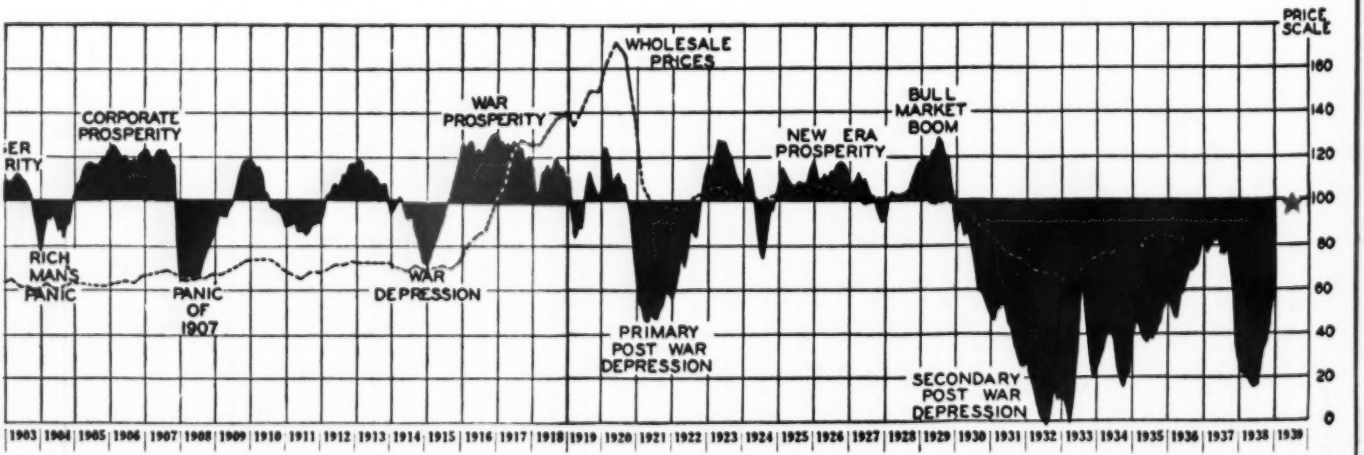
(*Editor's note: At this period the national government was exerting efforts to make the farmer's lot a pleasant one so that he would stay on his land and so that laborers would migrate from city to country. Purchase of anything above necessities was discouraged for city dwellers, but not for farmers.*)

July 7, 1917—"The Government was a large buyer of steel last week, so large in fact, that private consumers are practically barred from the market. . . . The plumbing and heating jobbing trade is practically marking time."

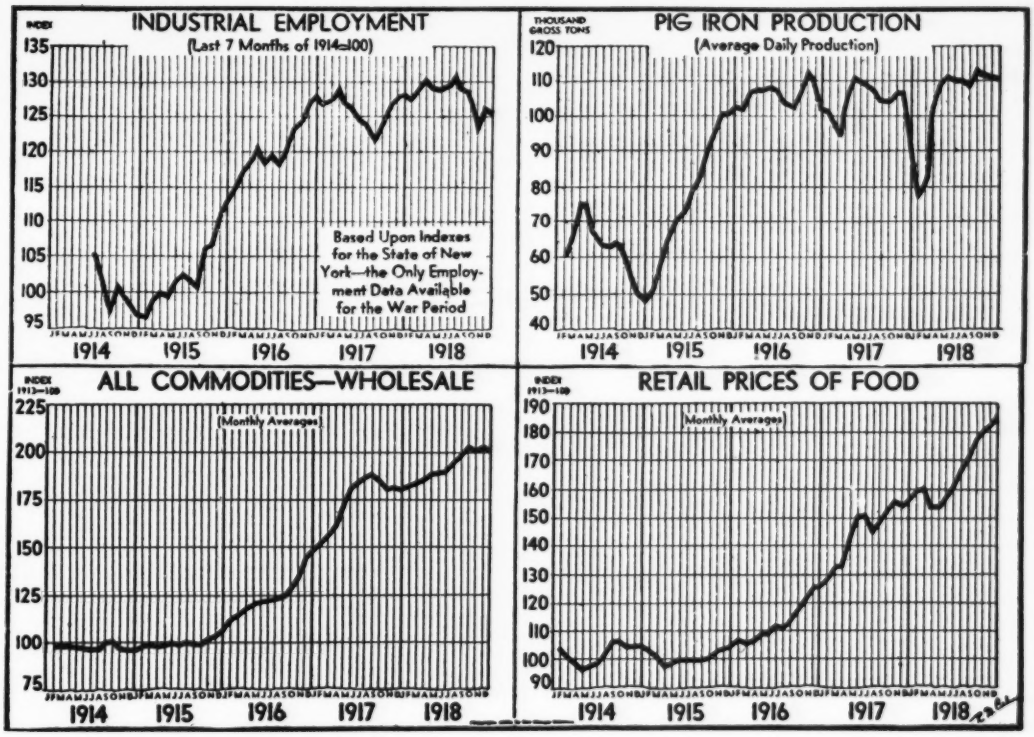
September 29, 1917—"Statistics have shown that building operations have fallen off to a marked degree in the various sections of the country. Many men in the plumbing, heating and ventilating trades, who have been identified with work of considerable scope, have felt the effect of this decrease, and they have been obliged to devote more of their efforts to smaller building operations, overhauling and repair work."

September 29, 1917—(Statement by Guilford R. Adams, president of Eastern Supply Assn.) "Except at certain points, where cantonments or plants for

In the continued chart at the bottom of the page note that the right hand scale gives values for the dotted line representing wholesale price averages. The scale for the solid black curve is given at the beginning of the chart on page 49



Four other World War economic indexes are given in these graphs



Metal prices of today are given on page 129 of this issue

the manufacture of war supplies are being erected, building is almost at a standstill, while the stocks in the hands of most jobbers are larger than the present demands. Consumption, except in the way of pickups, cannot be expected for some months to come, but there is always a demand for goods for repairs and improvements in buildings already erected.

"We must, as jobbers, conserve our stocks, for with labor and traffic conditions in their present state, there is no certainty of prompt shipment or speedy deliveries."

September 29, 1917—(Statement by member of Advisory Commission of the Council for National Defense) "State activities, private industries, building operations, public works, all must go on as before. Business must be increased, labor employed and the country kept going strongly ahead as a successful economic machine. We must have successful industries if successful tax levies are to be raised.

"In order to make the war successful, we must see to it that business and industry are successful. Any hesitancy or depression in the normal activity of our industrial life must naturally affect the even tenor of industry. Hence it is necessary that there be no further curtailment in building and industrial lines. Let public and private construction proceed."

October 20, 1917—"In an effort to revive building operations to a greater degree, a movement has been started in various cities to ascertain ways and means. . . . The committees realize that the Government has the right to obtain first deliveries on all materials. Then we must consider our allies and their needs. After these two considerations have been taken care of, private work can be considered.

"Contractors, therefore, will have to make the most of the present state of affairs in the realm of building, and concentrate more of their efforts on repair work, overhauling, remodeling and smaller construction work. . . . Some will be engaged in work upon cantonments and upon manufacturing plants which are to be erected for supplying the Government's needs during the war."

March 9, 1918—"Considering the fact that Secretary McAdoo advises the American people to defer new building and thus conserve material and labor for war purposes, Captain A. M. Maddock presented a suggestion at the recent meeting of the Eastern Supply Assn. that the various branches of the plumbing industry should cooperate for the purpose of overcoming, as much as possible, the present depression in the building trade. Captain Maddock said: 'If there is a united cooperation on the part of manufacturers, jobbers and master plumbers to put new plumbing into old buildings a wonderful business can be developed.'"

April 6, 1918—"There is a more energetic spirit along general building lines than has been manifest for the past few months, and while conditions are still slightly below par for this season, there is greater optimism in building circles. . . . Secretary McAdoo says, 'The government does not mean to discourage all home building, or do anything else which might react to the detriment of the public welfare.'"

April 27, 1918—"The country is now apparently waking up to the fact that it will not serve the national interests to postpone necessary building, whether it be dwelling houses, hospitals, farm buildings, industrial and warehouse construction or other work which serves a vital need to the community."

November 16, 1918—"As Americans we must now play our part in the great work of reconstruction and bring order out of chaos."

What is a Contractor.....

The plumbing and heating contractor is an independent business man . . . directly in touch with his community . . . energetic in the furtherance of his own interests and in the promotion of the health and the safety of his customers

"A MASTER plumber is an independent business man, directly in touch with the people of his community and energetic in the furtherance of his own interests and those of the community of which he is a part."

This definition was given by George W. Frank, in 1935, during his term as president of the National Assn. of Master Plumbers. Four years have detracted nothing from this conception, although many progressive plumbing and heating contractors would add to it or would interpret it further for the Mrs. Jones who lives down the street. Mrs. Jones is likely to think that a plumber is a plumber and that the term *master* plumber, if it means anything, must mean a "better" plumber.

The plumbing and heating contractor is *independent* because the very type of service he renders insures that he must be. His function as consultant and advisor to Mrs. Jones is highly individual, so much so that he cannot become a part of a large combination or an employee of others. Independently, he can have but one consideration—the health, safety, comfort and satisfaction of the persons whom he serves.

The plumbing and heating contractor is independent, also, because he has made his own place in society. He has not merely applied for a job and has been given it. Instead, he has come up through the ranks from apprentice to journeyman to employer of labor, businessman and planner of plumbing and heating systems; he carries within him the qualities that make him independent.

The plumbing and heating contractor is a businessman in the traditional American sense. Modern business has developed as a result of businessmen adapting themselves and their services to changing economic conditions. Business in its American form is based on the free play of natural forces and depends for its existence and growth upon a justified and recognized service without artificial bolstering, stimulants or restraints.

Perhaps no industry can record any more extreme changes in the character of the services it is called upon to perform than the plumbing and heating industry. Probably no industry has been more subject to encroachments by other industries than has the plumbing and heating industry. Through all this the business men comprising the contracting branch of our industry have adapted themselves to changing conditions, both technical and economic, and have justified their further existence and growth through the increasingly high character of the service they have set themselves to perform.

The plumbing and heating contractor must be in close touch with the people in his community. The complexity of plumbing and heating systems is such that the average individual can not hope to understand them; and in the majority of cases the plumbing and heating contractor is the first one thought of when emergency or routine repairs or additions to plumbing and heating systems are needed.

The plumbing and heating contractor is energetic both in the furtherance of his own interests and those of the community of which he is a vital part. He realizes, however, that the furtherance of his own interests can come only through the furtherance of the interests of his customers.

To understand the master plumber it is necessary to know something of his problems and the qualities and abilities he must possess to be successful. What are some of the problems of plumbing and heating contractors, and what abilities must they exercise?

First, the plumbing and heating contractor is a buyer of merchandise, with all that this entails in the way of financing, credit and storage. This problem is complicated by the fact that there are thousands of separate plumbing and heating items and, in addition, tools, trucks and equipment to be considered.

Second, the plumbing and heating contractor is a mer-

The plumbing and heating contractor is advisor and consultant to Mrs. Jones. He is a practical expert who translates her wishes into actual installations

chandiser. He must sell his products and services, and is dependent upon the consuming public for his prosperity. This factor not only requires salesmanship, but merchandising, displaying, advertising and collecting abilities as well. Since the successful contractor is generally his own best salesman, he must be able to deal intimately with the public and to obtain the public's confidence.

Third, he is an installer. While the contractor may not put in plumbing and heating equipment with his own hands, still he must be able to supervise the men who do. The mastery of merely the technical side of plumbing and heating in this age is an achievement in itself. In large buildings the planning of plumbing and heating installations requires engineering ability of a high order and a thorough knowledge of products and materials. Even in simpler installations an understanding of hydraulics, siphonage, expansion and contraction and circulation are required. Also, for any job, accurate cost-finding and estimating is an essential.

Since plumbing is so vital to health, and since faulty plumbing can be so dangerous to health, the contractor is required to understand and observe proper safeguards in his installations. In heating work the contractor is expected to safeguard his installation against explosion and asphyxiation hazards. He is a practical interpreter of plumbing codes and heating ordinances.

Since he is an employer of labor, the plumbing and heating contractor is called upon for an understanding of labor's problems and a knowledge of methods for maintaining satisfactory employer-employee relations.

As the master of all of these arts and sciences it is natural that the plumbing and heating contractor should be looked upon and respected according to the definition at the beginning of this article.

One master plumber says, "The true master plumber is the man I want for my competitor."

On the basis that plumbing and heating contractors are best qualified to discuss their special functions and activities, DOMESTIC ENGINEERING *queried Chris Bailey, Montgomery, Ala.; Marion Bennett, Holton, Kansas; John Cuneo, Chattanooga, Tenn.; Joseph A. Durr, Bloomfield, N. J.; Arthur L. B. Gavin, Scranton, Pa.; J. D. Hama, Chicago; Joseph G. Hayes, Indianapolis; A. C. Hayward, Stoneham, Mass.; Wm. H. Meerhoff, Richmond, Ind.; L. C. Montgomery, Sycamore, Ill., and George L. Roberts, Cleveland. Their definitions and the viewpoints of many other contractors have been utilized in this message to Mrs. Jones.*

What is a Manufacturer...

Product development and research, actual production, merchandising and continuing responsibility for product performance—these are all included in the manufacturer's big job

IF you were to ask Mrs. Jones, "What is a manufacturer of plumbing and heating products?" she would know the first part of the answer. She would say, naturally, that the manufacturer is the man or company who makes bathtubs, boilers, radiators and other items. Such an answer, of course, would show little appreciation for the problems of the plumbing and heating manufacturer, his achievements, and the effort which he expends to make sure that Mrs. Jones receives the safest, most beautiful, most satisfactory fixtures, equipment and materials that modern scientific industry can devise.

What must a manufacturer do? First, of course, he must decide if a public demand can be created for the type of product which he intends to make. He understands that if he is to succeed he must be able to contribute a product which will benefit the public. Either it should be more economical, safer, more beautiful, more durable than similar products on the market, or it should perform a new service or chore which has not previously been done mechanically.

When such a product has been invented or developed, the manufacturer is faced with the problem of placing it in production. To do this economically he is required to understand purchasing, transportation and all of the techniques of manufacture some of which may have been developed in other fields and can be borrowed for the production of plumbing and heating products. In addition, he must secure capital for his plant, his materials and his tools.

Concurrently the manufacturer must see to his merchandising, realizing that Mrs. Jones and her brother and sister consumers are not going to beat a path in search for the "better mousetrap" that they do not know exists. The manufacturer must master the arts of advertising and promotion, and through them, make his product known to his wholesaler and contractor outlets.

Manufacturers must anticipate shifting demands for their products and must allow for such demands by providing themselves with adequate supplies of raw materials and adequate production facilities. It falls upon them to provide for the distribution of their products so that when contractor-dealers have need for them, they will be available immediately in sufficient quantities.

Manufacturers in other industries may be finished with their products when they have sold and shipped them to their wholesale outlets. Not so the plumbing and heating manufacturer, for he realizes that no plumbing and heating product is safe, sanitary and satisfactory unless it is installed properly. This is a great and important difference between manufacturers in our industry and manufacturers in many other fields. This factor makes it essential for the plumbing and heating manufacturer to understand the functions and problems of the other two branches of the industry.

He must, of necessity, be interested in the selection and training of apprentices, the growth and trends of local and state codes, the examining and licensing of master plumbers, the work of wholesaler and contractor associations and new types of legislation such as sticker ordinances.

Realizing that poorly conceived or improperly made plumbing and heating equipment can be dangerous to public health and safety, the manufacturer is expected to test and inspect his products rigidly. Constant research is needed to make his products even safer and more sanitary to conform to the increasing complexity of modern demands. This research must be directed to improvements of any kind which will give the eventual consumer more satisfaction for his money. Manufacturers are primarily responsible for leadership in creating improvements in the design, operation and appearance of plumbing and heating products.

If Mrs. Jones is to have a full appreciation of the manufacturer's contribution to her health and comfort, and therefore insure his continued opportunity to serve her indirectly she must know plumbing and heating products, not as she might purchase them over the counter, but as they are installed and in actual operation in her home. It is obvious, then, that the manufacturer is concerned with Mrs. Jones' ultimate satisfaction.

To the manufacturer goes much of the credit for

Mrs. Jones is here shown the primary function of the manufacturer — the actual making of a product

America's reputation as the most sanitary-conscious of nations and for the fact that the United States is known as the land of the bathtub. This was not always the case, for in earlier years this country lagged behind England, France and other nations in the development of many sanitary and heating products. But, in the past half century this disadvantage has been overcome until now the United States leads the world in the development and production of plumbing and heating products. The manufacturer should receive his full share of credit for the past advance and for the present superiority.

Just as many contractor-dealers have come from the ranks of journeymen, many men now active in plumbing and heating manufacturing enterprises formerly were contractors or wholesalers. Upon this, as a basis, has been built the understanding of mutual problems existent in our industry. Through this, our industry has made its greatest strides in progress.

Another factor which occupies the concern of manufacturers as a specialized problem has to do with what might be termed, in its broadest sense, public relations. It has been pointed out on previous occasions that a manufacturer's public relations extend to five definite groups. First, there is his relation with his sources of supply, the producers of raw materials; second, his own employees; third, his stockholders; fourth, the community in which his plant is located; fifth, and probably most important of all there is his relation to his customers who include, directly, the wholesaler and, indirectly, contractor-dealers and the ultimate consumer. It is the manufacturer's responsibility to assure that these groups be maintained strictly within the limits of their relative importance.

The information in the foregoing definition was furnished by many individual manufacturers, including L. J. Schanz, The Mercoid Corporation, Chicago; J. R. Wightman, Mueller Brass Co., Port Huron, Mich., and several officers of manufacturers' associations.

What is a Wholesaler.....

A plumbing and heating wholesaler carries from 10,000 to 20,000 items regularly in stock to meet contractors' needs

BECAUSE Mrs. Jones finds all of the materials for the construction of her bathroom and of her automatic heating plant in a nearby contractor-dealer's showroom, she may not realize where they originated. Because they are there, the chances are it is assumed they always have been there. If she does any thinking about it, it is likely she will dismiss the entire subject with the explanation that it is the result of just one more of the marvels of the technical and scientific age in which we are living.

In this latter opinion she would be entirely correct. Viewed from a position of 50 years ago, modern methods of distribution do constitute something over which we can marvel. In Mrs. Jones' bathroom she has a bathtub, a lavatory and a water closet which were manufactured in one part of the country; she has faucets and other brass goods which may have been manufactured a thousand miles from the plumbing fixtures to which they are attached; the supply piping which distributes the water throughout her home may have been manufactured in Ohio, Pennsylvania or Michigan, and the piping which takes away the waste may have been manufactured in Alabama, New York or some other state.

In the case of heating, Mrs. Jones is given a choice of boilers, oil burners, stokers and gas burning equipment. Each of these different items may be manufactured in a different location, but all are made available to Mrs. Jones in her own home town.

Nothing in the foregoing mentions the vast number

The wholesaler's job is to serve as a concentration point for the separately manufactured items used in plumbing and heating installations. This forms a basic function

of small items such as washers, fittings, valves, radiator enclosures, traps and other pieces of equipment.

All of this manufactured equipment must be brought together and placed in warehouse bins and stockrooms in enough places throughout the United States so that immediate shipments may be made when Mrs. Jones gives the word to install her new bathroom or to remodel her heating plant. All of this must be brought together in anticipation of demands on the part of contractor-dealers, who generally order as and when Mrs. Jones signs the contract.

All of these products and supplies must be brought together, having in mind the fact that it is uneconomical to carry excessively large stocks of items which do not move quickly and that it is equally wasteful to carry small stocks of fast-moving products. In the former case, valuable space is taken up, the risk of obsolescence is encountered as a result of constant improvements in design and operation, and working capital is tied up in slow-moving stocks.

On the other hand, in the latter case, when adequate supplies are not kept on hand, there is the actual extra cost as a result of special handling and special orders; there is the inconvenience to Mrs. Jones, who is anxious to have her job completed; there is the disturbance to the contractor-dealer's production schedule, with actual financial losses due to delays and revised plans. Finally, there is a loss of prestige and goodwill, and there is the development of resistance to future work.

This bringing together of products for local use by contractor-dealers in connection with their installations in the homes of the Mrs. Joneses is the function of the wholesaler. The wholesaler's job is to serve first as a concentration point for the separately manufactured items which are used in the fabrication of plumbing and heating installations; in turn, his job is next to serve as a point from which distribution is obtained for individual installations.

The average wholesaler of plumbing and heating products carries from 10,000 to 20,000 styles and sizes in stock regularly. The average owned inventory for 175 members of the Central Supply Assn. in 1938, not including consigned stocks, was $67,691.00. The rate of stock turn-over was approximately four times per year. A wholesaler, in order to give service to his contractor-customers, must carry many slow-moving styles and sizes and repair parts—the turn-over on which is less than once a year.

Transportation, selling and collection expense, obsolescence, bad accounts, replacements and adjustments —all must be considered in thinking of the wholesaler and his place in the established channels of distribution.

Wholesalers, in filling the usual run of orders, assemble the products of many manufacturers in quantities suitable to the needs of their contractor-customers at that time, and must be in a position to make deliveries within a 24-hour period. Without this service, or a comparable method of distribution, a contractor might be obliged to wait a week or more for the same material, if ordered directly from the various manufacturers. To overcome this, an anticipation of demands and orders for products in advance of their actual need would be necessary and then, the contractor would be doing just what the wholesaler now does. In other words, the wholesaler does work which is indispensable.

Such direct ordering also would involve an increase in the actual number of orders sent to manufacturers and a corresponding decrease in the size of each order. In both cases, this would mean an increase in handling and transportation costs. For the contractor, it would mean that he would be required to have a special order department or someone trained in the specialized work of purchasing.

Another function which may be carried on by the wholesalers is to maintain showrooms for the use of contractors when Mrs. Jones wishes to see a full line of the actual merchandise she is purchasing. This may hold true even when the contractor has a good display of his own, for only under very unusual conditions could a contractor find it feasible to have in stock all of the fixtures, equipment and materials which his customer might wish to examine.

The above discussion of plumbing and heating wholesalers and their functions has been condensed from information furnished by several wholesalers and by several officers of supply associations. Among these are W. E. McCollum, secretary, Central Supply Assn.; Harry S. Van Denberg, Van Denberg Supply Company, Rockford, Ill.; S. E. Hunting, The Hunting Company, Rochester, N. Y.; W. J. Busser, Busser Supply Company, Lewisburg, Pa.; Stewart K. Sutton, Bernardsville Plumbing Supply Co., Bernardsville, N. J.; Louis J. Merkel, The Merkel Brothers Company, Cincinnati; H. O. Nelson, Nelson Company, Detroit.

What is a Sticker Law ....

A plumbing code without enforcement is like an automobile without gas—it can't do anything. The sticker ordinance offers a practicable way to get code enforcement

"WHEN we place a sticker on a fixture which is sold to you, Mrs. Jones, this means that the installation will be thoroughly inspected by the Department of Health to insure that it conforms to all of our local requirements for the protection of health and safety."

In the above illustration the clerk at the right is placing a sticker on a fixture which has been sold and which is to be delivered for installation. Another clerk is shown making a record of the printed number on the sticker and the address of the person to whom the fixture has been sold, together with the address of the place where the fixture is to be installed. This brief record forms the basis of the so-called sticker law.

Fundamentally, a sticker ordinance is for the purpose of assisting the plumbing inspection department, usually in conjunction with the health department, to carry on its legally prescribed function of enforcing plumbing and heating regulations for the protection of public health and safety. These regulations usually are known as plumbing and heating codes and since members of our industry are accustomed to being governed by these codes, they operate effectively as a final check in assuring that installations made by master plumbers and heating contractors are safe and sanitary. However, in many instances the code by itself is unable to regulate installations made by unqualified handymen. Here is the paradox: Codes provide adequate inspection of work which is done by men who know how to make proper installations and who have the best interests of the public

at heart; often they fail partially or completely, due to no special fault of the code itself, in bringing about adequate inspection of work done by persons who do not know how to make proper installations and who may be indifferent to the best interests of the public. The sticker ordinance is designed to meet this problem. It is little more or less than an act to insure the enforcement of existing plumbing and heating codes upon everyone, equally, for the protection of public health and safety.

How does it operate? As indicated briefly in the foregoing the ordinance requires all dealers in plumbing and heating fixtures and equipment to attach to every fixture sold, a sticker which has written on its face a serial number and a statement as to whether the fixture is for resale or for installation.

The ordinance further requires the dealer to make a weekly report to the plumbing inspection office listing all fixtures sold during the preceding week, whether such fixtures were new or second-hand and whether for resale or for installation. If the fixtures are sold for installation, the report must state where they are to be installed.

When the plumbing inspector receives these reports it is a simple matter for him and his assistants to visit the places where fixtures are listed for installation and to inspect these installations. If the fixtures are safe and sanitary and if the installation has been made properly, all is well and good and the code has operated satisfactorily. If the fixtures are unsafe or insanitary, or if the installation has been incorrectly made, then the inspector can order corrections and the code again has operated for the protection of the public.

The qualified master plumber makes no objection to the sticker ordinance, for he wants the plumbing code enforced. He intends to supervise personally the installation of the fixtures which he sells, and he wants these installations to conform to the code in every respect so that both he and his customer will be protected. The master plumber realizes that a fixture, safe and sanitary in itself, may be hazardous if it is improperly installed.

But consider a possible viewpoint of the person who sells the fixture "over the counter" without thought or care as to its installation. His first consideration might naturally be the profit which he makes on this sale. To put the most charitable interpretation on his actions and motives, it might be said that usually he has no way to control the installation of the fixture, that often he does not know who will make the installation and therefore cannot determine if the installer understands the provisions of the code, or would even abide by them if he could understand them.

If this dealer abides by the law, if he places stickers upon the fixtures he sells and reports them, the plumbing inspector or a fellow official can go out to make inspections at the locations where the fixtures have been installed, just as he would on information furnished by a master plumber. But suppose the unknowing and unsuspecting home owner has purchased the fixtures "over the counter" in an effort to save a few pennies, both on the fixture and on the installation. Pursuing this further, suppose he has the fixture installed by a person who either does not know the provisions of the plumbing code or is not able to abide by them because he has not the necessary training and knowledge to apply the principle embodied in it.

Because of actual or potential dangers to the occupant's health and safety the plumbing inspector orders corrections to be made.

The natural effect of all this is for the home owner to blame the dealer who sold him the fixtures in the first place—first, because apparently the dealer did not have the health and safety of his customer at heart and, second, because the dealer tacitly permitted him to blunder into an expensive situation.

Considering such circumstances, it is to be expected that sticker ordinances will be assailed by persons who appear to be concerned primarily with immediate profits and only secondarily, if at all, with the enforcement of the plumbing code and the promotion of health. All of this merely re-emphasizes that plumbing codes are justified by the health protection they provide and that, when this point is conceded, their equable enforcement is also justified.

Strangely enough, persons who specialize in selling plumbing and heating equipment as they would sell furniture or clothing, in the long run are protected against a short-sighted policy, through the operation of the sticker ordinance. If a disregard of plumbing codes causes dissatisfaction on the part of the consumer or home owner, this inevitably reflects to the detriment of all connected with the equipment involved. The sticker ordinance is designed to assure satisfaction through correctly made and safe installations.

Sticker ordinances bring the distribution and installation of plumbing out of a dark corner and into the light of day. Persons who favor sticker ordinances believe that the facts on plumbing code enforcement should be known.

The sticker ordinance of one city (Dayton, Ohio) has been assailed on the basis that it is discriminatory and that it places an unreasonable burden on dealers in plumbing fixtures. A judge in the common pleas court of that city recently refuted this claim in upholding the ordinance saying, "In our opinion this (ordinance) does not constitute discrimination. . . These requirements do not appear to us to be impossible of performance, nor do we consider that they would be difficult or their requirement place an unreasonable burden upon the dealer."

A sticker ordinance is as essential to the protection of health and public property as gasoline is to the operation of an automobile. The finest motor car in the world will not run unless there is gasoline in the tank. If this gasoline is inferior or diluted with water, the performance of the car will be equally inferior. Likewise, the finest plumbing code in the world is valueless if the motive force for making it work is faulty or ineffective.

This explanation of a sticker ordinance is based on correspondence and specially prepared comments from James E. Withers of Dayton, Ohio, where greatest attention has been focused on this type of legislation, and from secretaries of other associations where sticker ordinances are now in force.

What is a Journeyman ....

He is the technically trained craftsman who makes the actual plumbing and heating installations and shares with the master plumber the responsibility of turning out finished jobs which reflect credit on our industry

". . . . When responsibility is assumed fully and jointly by the employing contractor and his employed journeyman and when it leads to customer satisfaction . . . real benefits must follow"

THE master plumber is responsible for capturing the good will of the buying public. The journeyman plumber is the one who must preserve this good will. While the master plumber in selling plumbing and heating products and services may build up in the minds of his prospects what his organization can do, it is

the journeyman plumber who actually does the work and who is required to fulfill the claims of his employer. The journeyman plumber has numerous important responsibilities which he shares with the plumbing and heating contractor who employs him.

Some of these joint obligations to the consumer are to finish the job promptly within the time specified; to carry out the job in a clean and workmanlike manner; to make every job an ambassador of good will and every customer a booster and a salesman and to be watchful constantly for ways in which added services may be rendered the public served.

Perhaps the best way to show the value of such joint responsibilities when they are adopted wholeheartedly is to reprint excerpts from a recent letter received by DOMESTIC ENGINEERING from a manufacturer in our industry. The writer said: "A short time ago I let the contract for installing a new bathroom, kitchen and heating plant, including piping and radiators. . . . I was absolutely amazed to see plumbing work carried out with such promptness, such precision, such cleanliness and good workmanship under difficult circumstances.

"Ordinarily plumber's work may be considered to be dirty and grimy. The customer is likely to fear the marring of hardwood floors when heavy radiators are dragged across them, and dirty fingerprints left on newly-painted woodwork as a result of carelessness. . . . But these journeymen stepped into my immaculately finished home to install radiators and plumbing which involved cutting of new hardwood floors and new woodwork. When they emerged the work was finished with not a scratch to be found anywhere in the house, the paint was clean, and there was not a sign to show that workmen had been present.

"When this contractor and his journeymen completed the job I was more proud of it than they were, because all of their work for all of their customers is done just that way."

It is needless to remark that when responsibility is assumed fully and jointly by the employing contractor and his employed journeyman and when it leads to customer satisfaction such as that indicated in the foregoing, real benefits to both must follow.

Developments of the last few years have imposed additional responsibilities upon journeymen plumbers and steamfitters. The pressure of economic conditions has required that ways and means be devised for giving increased values and service to the consuming public.

One very definite answer has been in the use of completely equipped motor trucks in which are carried thousands of plumbing and heating parts and tools capable of handling practically every job encountered in normal repair and remodeling work. A journeyman in charge of equipment of this kind becomes very nearly an independent unit, the success of which depends upon the journeyman's enterprise, initiative, skill and ability to satisfy quickly and efficiently, his employer's customers.

A plumbing and heating journeyman must serve an apprenticeship before he can be registered for work, but he does not end his educational efforts with the conclusion of his five years of training.

After serving his apprenticeship, and when he becomes a full-fledged plumber and steamfitter the journeyman must continue his studies and must increase his abilities if he is to keep abreast of new developments. In short, he must continue to learn throughout his whole career. A high degree of technical skill, knowledge and ability are needed by the journeyman because of the variety and complexity of the work he does.

Is all of this specialized training and knowledge necessary? Mrs. Jones will realize that it is if she will stop to think of the hundreds of component parts that make up the plumbing and heating systems in buildings, both large and small. This equipment is so essential to the comfort, safety and well-being of the occupants of the building that, without it, the building would indeed be barren and unfit for human use. Plumbing and heating equipment must be installed in homes, in offices and in institutions if civilization is to be maintained. It must be installed correctly if life and property are to be protected. The journeyman plumber and steamfitter shares this responsibility with the contractor. The journeyman can make practical use of every skill and every bit of knowledge that he can obtain.

In years past it was sometimes true that insufficient attention was paid to the education of new journeymen and future journeymen by those primarily concerned, namely older and experienced journeymen and plumbing and heating contractors. The apprentice, particularly, was often forced to gain his knowledge by rule-of-thumb methods that were in vogue then, but are inadequate for the more exacting requirements of today.

However, in recent years, associations of plumbing and heating contractors and organizations of plumbing and heating journeymen have recognized this deficiency and have adopted apprentice training programs designed to correct it. The result is that a new journeyman is today better equipped to make a real contribution to the industry and the public than ever before. Formal instruction continues, in many cases, even after the man has passed his examinations and has been registered as a journeyman.

In many localities men who have been journeymen for years are studying in night classes several evenings a week. These classes often are operated jointly by the contractors and the journeymen, the latter group recognizing the necessity for training themselves continually in the highly skilled branches of the trade.

In view of the above points, the contractor may well speak to his customer as follows: "The next time you have the opportunity to employ a journeyman in your home, Mrs. Jones, you can observe that, while he seems merely to be fitting and joining together various pipes, there is a reason for every move he makes. His every action is carefully thought out and designed in advance so the finished job will be entirely satisfactory and will perform the functions demanded of it—bringing you the best in plumbing and heating safety, convenience and satisfaction."

For the above definition of a journeyman plumber and steamfitter and his qualifications and functions, DOMESTIC ENGINEERING *is indebted particularly to J. E. McNevin, Denver, vice president, Heating, Piping and Air Conditioning Contractors National Assn., to Wallace G. Imhoff, technical director of research, American Hot Dip Galvanizers Assn., Inc., and others.*

What is an Apprentice ....

Five years of well balanced training, including classroom instruction and actual installation work under competent guidance, prepares beginners to assume future responsibilities in our industry

AS FAR as Mrs. Jones knows, a plumber just happens—like a grocery clerk, or like Topsy. Anyone who can work on a pipe or install a faucet washer is a plumber, and a plumbing apprentice is merely a young plumber.

We in the plumbing and heating industry realize that the apprentice represents the coming generation in our industry; that the future complexion of it depends upon how well the apprentice is selected and trained and how completely he absorbs the traditions and standards built up for him by those whose places he is to assume.

But what is an apprentice actually? An understanding of him and his place in our industry probably can be gained best by considering how he is classified by different groups. First there is the formal definition offered by the Federal Committee on Apprenticeship which states, "The term 'apprentice' shall mean a person at least 16 years of age who is covered by a written agreement with an employer or with an association of employers or employees acting as agent for an employer and approved by the state apprenticeship council or other established authority, which apprentice agreement provides for not less than 9,500 hours of reasonably continuous employment for such person, for his participation in an approved schedule of work experience through employment and for at least 144 hours per year of related supplemental instruction."

All of this means that the apprentice first must be selected and approved by an employer, by employees and by local or state authority and that then he must go through a period of training. This training lasts for 5 full years (practically as long as a doctor's schooling) and it must consist of school as well as job instruction. The master plumber or the plumbing and heating contractor, or his association, must guarantee the apprentice that period of employment.

The attitude of employers and employees who must absorb apprentices is reflected in the fact that contractor associations and journeymen organizations in the plumbing and heating industry, for years, have consistently urged that plumbing and steamfitting apprentices be indentured under conditions which provide broad training through actual trade practice supplemented by technical and theoretical school work. Apprentice training programs based on the foregoing are carried on as local activities throughout the country. The successful results achieved have led the National Association of Master Plumbers, the Heating, Piping and Air Conditioning Contractors' National Association and the United Association of Journeyman Plumbers and Steamfitters, to request the Federal Committee on Apprenticeship to act as a coordinating agency in the development of two nationwide apprenticeship programs, one for plumbing and one for steamfitting. These national standards have been drawn up, approved and placed in operation. These associations, through their close cooperation in these plans, have set an example, the influence of which will contribute materially in assuring America of an adequate number of skilled craftsmen competent to assume the increasing responsibilities attendant to the protection of public health and property.

Our industry has come a long way since the time when a young man was brought into a plumbing shop and given odd jobs to do without any systematized training being laid out for him. Now a national apprenticeship committee of the Federal Government is cooperating with the national associations in our industry to standardize apprentice training.

In considering apprenticeship in the plumbing and heating industry, one has to keep in mind the fact that with the constantly increasing consciousness of sanitation on the part of the American people, and with the growth of large cities, there is a corresponding responsibility to be assumed by employer and employee alike. Society must be protected against the inefficient and ineffective workman not only by effective training but by the examination of those who have followed a prescribed course of instruction. This has led to provisions in sanitation laws and codes which require the certification of skilled workers who assume the responsibility for

No longer do apprentices learn "rules of thumb"; their field training is supplemented by basic instruction in the chemistry and physics of sanitation as well as in the other aspects of the plumbing and heating business

installing plumbing and heating. This is the reason that learners must undergo an intensive and extensive period of training.

Under modern conditions there is need for much more than the mastery of the manipulative practices of the trade. For the plumbing apprentice, a knowledge of various kinds of metals and the action of various chemical elements upon these metals must be understood. The plumbing apprentice must learn of the behavior of water and air in pipes. He must have a knowledge of the part played by bacteria in causing disease, must realize how bacteria can be spread through defective plumbing systems, and must know how to prevent such occurrences. He must learn a great deal about dozens of related subjects, both manual and theoretical.

In other words, the apprentice plumber needs a conception of his job both in terms of the skill required for the proper performance of the manual work and in relation to the natural laws which underly modern sanitation. He must also learn and understand the laws passed by state legislatures and city councils regarding his craft.

The apprentice steamfitter must undergo a period of training no less rigorous.

In general, the apprentice must be a high school graduate or have equivalent education. For the first three years the apprentice is given, in addition to formal instruction, the opportunity to assist in the installation of such plumbing materials as his skill will permit, but only under the supervision of a journeyman.

During the fourth and fifth years he may do work consisting of installing piping, setting plumbing fixtures, appliances, etc., depending, of course, upon the development of his skill. All such work done by apprentices must conform to the city or state codes having jurisdiction. During the whole five year period the apprentice is paid wages which increase at stated intervals until, at the end of the period, he receives nearly the full pay of a journeyman plumber.

When the apprentice has finished his training period, he is given a thorough-going examination to prove his right to become a full-fledged journeyman plumber. In many cases he is given periodic examinations so that a record of his progress may be obtained. According to the steamfitting apprenticeship standards, the steamfitter apprentice is first of all assigned to the shop of a heating and piping contractor for a probationary period of six months, during which time his progress is carefully checked to determine if he possesses the qualities re-

(Continued on Page 144)

What is an Inspector .....

Primarily an enforcement officer working in the general public interest, he is also a consultant, advisor and diagnostician for the consumer, the contractor-dealer and the manufacturer alike

A PLUMBING inspector inspects plumbing. Every Mrs. Jones knows that, from the name, but she might not know *why* he does it—she herself can inspect her plumbing by turning on the faucet to see if it works. She may think the plumbing inspector is a bother, particularly if she has an insanitary installation in her home and he condemns it.

Such a lack of understanding presents an obstacle to the improvement of standards of health and comfort. Mrs. Jones should be given the opportunity to understand how the plumbing inspector safeguards the health of herself and her family.

Courts throughout the entire country have frequently adjudged that plumbing is essentially a health problem. Therefore, local and state health boards, councils and legislatures, charged with the responsibility of promoting and protecting public health, enact or adopt laws or regulations to govern the installations of plumbing fixtures and appurtenances. These laws or rules are called codes.

In an Ohio City not long ago a typhoid fever epidemic broke out. After other professional men had failed to find the cause or carrier of the disease and after three lives had been sacrificed, the plumbing inspector was called in. He quickly discovered the trouble—faulty plumbing construction—and prescribed the remedy.

Now if these public health officials and legislators whom we trust with our safety and health, agree that plumbing has much to do with this safety and health, then it reasonably should follow that government agencies should have persons on their staffs capable of interpreting the plumbing codes, enforcing them, and insuring the safe installation of plumbing. The plumbing inspector does this job.

Of necessity, the inspector is schooled in all the technical aspects of the science of plumbing. He is called upon to know construction engineering, for the safety of inhabitants of the buildings he inspects is to some extent in his hands. He is expected to know hydraulics —the study dealing in part with the flow of water and air in pipes. Few persons realize or appreciate how important the proper sizing and development of a soil, waste and vent system is to the successful functioning of plumbing in a building. Then there are the hot and cold water lines, drinking water lines, sprinkler lines, gas lines, etc., which although they may be covered or concealed, must be considered.

The plumbing inspector is required to be schooled in water works engineering for he is the protecting link between safe water and polluted water. He is required to know about pumps, motors, filters, and so forth. He is schooled in sanitary engineering, for supervision over the facilities for the disposal of human and other wastes is in his hands.

In the city hall of Grand Rapids, Mich., the local plumbing inspector discovered that it was possible to pollute the drinking water. The investigation was extended without the necessity of a tragedy, and resulted in the removal and destruction of over 1,000 obsolete and insanitary plumbing fixtures from the local schools and other public buildings.

He must be acquainted with the growth and transmission possibilities of bacteria. A knowledge of this is essential, for the spread of typhoid, dysentery, undulant fever and other water-borne diseases can oftentimes be traced to unsafe, insanitary plumbing.

He is asked to understand the action and nature of gases which may be present in sewage systems and which may be hazardous.

The plumbing inspector is expected to be trained in

the details of fixture construction, both as to design and material. He is expected to have knowledge adequate to distinguish safe and unsafe fixtures and devices, for today many outmoded and insanitary fixtures find their way to the public through various channels.

He is required to be, in measure, a psychologist and a philosopher, for he deals with the public and must understand the home or building owner's problems.

Certainly the plumbing inspector is pleased to aid as a consultant to master plumbers, and representatives of the other branches of our industry, and as an interpreter of the plumbing code. In this way he serves not only the contractor, but the public as well, for his advice in advance may prevent installation methods which might otherwise be declared unsatisfactory later and thus cause inconvenience to Mrs. Jones.

The plumbing contractor is serving both himself and Mrs. Jones when, upon finishing a job, he calls in the inspector to verify and prove to her that the work complies in every respect with the requirements of public health regulations.

The plumbing inspector does even more than these things. In his earnestness to protect health and as part of his duty to the city or state which employs him, he keeps informed on advances in plumbing technique and design and on developments in plumbing legislation outside of his jurisdiction. Thus he is in position to advise government bodies and officials on desirable changes and additions to the plumbing code and laws. Often he exerts great effort and influence to procure such needed changes, changes which will benefit the plumbing industry as a whole and the public at large.

As a natural development and because of the vital importance of a thorough understanding of the practical aspects of plumbing, most plumbing inspectors come from the ranks of our industry.

DOMESTIC ENGINEERING *wishes to acknowledge the assistance of the following leaders who have submitted facts and viewpoints used in this article: T. M. Dugan, past president, American Society of Sanitary Engineering; William C. Groeniger, consulting sanitary engineer, Columbus, Ohio; James A. Schaub, chief plumbing inspector, Orlando, Fla.; Earl C. Schavey, president of the American Society of Sanitary Engineering; Stephen I. Smoot, secretary, Pacific Coast Plumbing Inspectors Assn.; Albert Swartz, chief plumbing inspector, Grand Rapids, Mich.; B. O. Tilden, Trenton, N. J.; James R. Walker, secretary, American Society of Sanitary Engineering and others.*

Mrs. Jones is shown a potential health hazard in a fish pond in the kindergarten room of a school. The possibility of draining water from the pond into the pure water supply where it may be redistributed to drinking fountains and other fixtures is due to the fact that the supply inlet is several inches below the overflow. The teacher in charge of this room is reported to have argued against the correction of this condition because it required raising the spout from the ornamental frog to above the rim of the tank

What is Relation of Plumbing and Heating to Public Health and Safety .

Where civilization goes, water pipes follow, and with them go the full technical and scientific resources of our industry to protect the public served by its products

ONE of the chief horrors of the fall of Warsaw came as a result of the breakdown of water and sewerage systems.

The availability of water under pressure in every incorporated community of more than a few hundred population is taken for granted by the American public. What is more commonplace than turning a faucet and finding an adequate supply of water? Indeed, pure water has been so readily available for so many years that few people, not definitely associated with the task of providing it, realize what a great compliment to sanitary engineering and plumbing is implied by the simple act of drawing water.

Those responsible for protecting this confident public against water-borne typhoid, dysentery and other diseases cannot become complacent about water. Sewage from any community still carries the bacteria that are responsible for the common water-borne diseases. Continually, the job is to prevent this from mixing with or gaining access to pure water supplies.

Great pipes reach out to a neighboring lake, gather in thousands of gallons of water, transport it through an underground, man-made river to the city. On the way the water is filtered to make it clean or chemically treated to make it pure. A maze of mains leads it to every section of the city—to every street, to every block, to every home.

Smaller pipes reach out from the mains and bring the water into the home. Mrs. Jones uses it for bathing. She uses it to clean her home, to wash her clothes, to nourish her flowers and to quench the thirst of herself and her family. Water washes away quickly, and without any effort, the human wastes of the family.

While the pure water enters the home through one set of pipes, the waste water leaves the house by another set of pipes, connects to other mains, is transported then to sewage plants and finally to a stream which carries it away from the city.

Mrs. Jones takes these two systems of pipes and mains, these two kinds of water, completely for granted. She never thinks of the possibility of the dangerous water becoming mixed with the pure even though they terminate and begin in a single plumbing fixture!

The fact is, of course, that polluted water does often find its way into the pure water supply lines, bringing illness and death. In a large hospital or hotel plumbing cross-connections which permit the back-siphonage of sewage into the water supply may cause a large scale epidemic —an occurrence which has been repeated in numerous instances.

In a home the entire family may be stricken with disease. But the disaster does not always stop there, for the germs may back-track into the mains and infect another family down the street or an entire area.

These disturbances occur more often than Mrs. Jones thinks. True, illness is common enough, but the family doctor may diagnose the disease perhaps as the "stomach trouble that is going around." That disasters are not more common is a tribute to the constant watchfulness of the plumbing industry and associated scientists and public officials.

Typhoid fever is a water borne disease which finds its way into many homes lacking the protection of properly designed and correctly installed plumbing. Of equal importance is the need for properly installed water heating and home heating equipment

Of what elements does the public's protection against impure water consist? First there is the manufacturer, whose responsibility it is to produce fixtures and devices as inherently safe as modern invention makes possible. Second, there is the testing laboratory which makes a double check on the fixtures and devices, determining under what circumstances they may be installed safely. Third, there is the wholesaler whose functions include the proper distribution of sanitary fixtures and supplies. Next there is the plumbing contractor and the plumbing engineer who plans and supervises the installation. There is no more vital link in this chain than this last named factor. The most scientifically designed equipment is ineffective if it is not properly installed. As a final safeguard, there is the plumbing code and the plumbing inspector who performs the dual function of interpreting and enforcing specific regulations.

The foregoing represents what might be called external safeguards against the hazards of water-borne disease. As complete as these defenses may appear, there is one additional consideration over which neither our industry nor departments of health have any control, namely, the attitude of the public itself. If Mr. and Mrs. Jones do not realize the health hazards of bad plumbing or if they are indifferent to these potentialities, then the whole closely-knit system of protection is weakened if not completely broken down.

If the Joneses have their plumbing installed by unqualified workmen in violation of mandatory laws and contrary to the findings of modern research, then the efforts of scientists, manufacturers, wholesalers, contractors, sanitary engineers and departments of health are nullified completely or in part.

Fortunately, progress is being made on an educational front through continually increasing efforts to disseminate authentic information. Progress has been made on the legal front with the passage of the sticker ordinance, stricter codes and laws aimed to prevent the reinstallation of insanitary fixtures.

In this country and in this modern day it is almost criminally stupid to install or permit the installation of insanitary or unprotected plumbing fixtures or to allow the installation of sanitary and protected fixtures in an insanitary manner. Faulty plumbing already in operation presents a perhaps graver problem, for errors in design or installation can only be detected by reinspection. And the natural tendency of Mrs. Jones is to let her plumbing alone if it seems to work. For the correction of these present dangerous conditions only continued educational efforts by the plumbing industry and associated interests are immediately feasible.

The suggestions of a great many sanitation and health

(Continued on Page 142)

Historical Parallels .....

What has been happening in our industry during period of world-wide development? Fifty years of parallel activities are traced

FIFTY YEARS ago this month the first issue of DOMESTIC ENGINEERING rolled off the presses. There were no automobiles then and plumbers delivered their merchandise with a horse and wagon. There were no radios or airplanes; no street cars or motion pictures. Steam heat and telephones were found only in the homes of the wealthy and the lowly

1877 . . . Edison's gramophone was invented and in the same year the sit down shower introduced for the first time

kerosene lamp lit the majority of the homes in America.

The years since 1889 have been years of almost incredible progress in every field of human endeavor. Stimulated by scientific research and invention, by population growth and immigration, industrial productivity expanded to proportions no one dreamed possible. Paralleling this industrial growth and closely interrelated with it is the growth of facilities for communication, transportation and building. Less obvious, but probably even more important is the expansion of educational facilities and the steady accumulation of knowledge. Along with these outward evidences of progress went changes in the living and thinking habits of millions of the world's people.

Much of this progress has been made possible by developments within our own industry. Without the development of sanitary facilities for which the plumbing and heating industry is responsible the great urban centers which characterize modern civilization would be totally impossible. The health and fire protection provided by almost unlimited quantities of pure water and adequate sewage disposal has provided a new environment for millions of the world's people.

What are the landmarks of the past fifty years? What are the high spots of progress in our own industry?

1889

The first transcontinental railroad was twenty years old. Truck and bus competition was undreamed of. Montana, Washington, North and South Dakota were admitted to the States and four more stars were added to the flag. **First patent on a hot water radiator was only 30 years old and there seemed to be a competition between manufacturers to see how much decorative scrolled work could be worked into a single radiator. The Heating, Piping and Air Conditioning Contractors National Assn. was organized.**

In Pennsylvania, floods burst a dam and practically wiped Johnstown off the map. Not so far away, in Pittsburgh, a new company began producing aluminum and found a market for about seventy-five tons a year at two dollars a pound. Baseball was a flourishing and popular sport. John L. Sullivan was first heavyweight champion of the world. **In Minneapolis the State Board of Health set up an experimental plant to study the effects of filtration on sewage disposal. Oakland, Calif., and St. Louis established plumbing codes. These codes were antedated by only a few cities—among them Washington, D. C., Worcester, Mass., and Wilmington, Del. Domestic Engineering forecast that trade schools would take an important place in the training of journeymen and published pictures of leadwork done by students in the New York Trade School.**

1890

"Coo, 'Erbert, look at the blinking thing go," said a cockney in Liverpool to his friend. They were watching the first trip of the first electric locomotive in the world. While 'Erbert was looking, this country saw its first hydro-electric plants go into operation and the plumbing and heating industry saw the first siphon water closet patented. There was quite a bit less frontier left in the country as Idaho and Wyoming were admitted as states.

1891

The New York Assn. for Improving Conditions of the Poor erected two public bath houses. Running hot and cold water was not considered necessary, however, nor was it felt that baths were necessary except in the summer months. With some misgivings the principle of recirculating air in a ventilating installation was tried out. Most of the bathtubs sold were carefully disguised as benches or else arranged to fold into a wall cabinet. The world lost a great showman with the death of Phineas T. Barnum. **Domestic Engineering reported that a bill providing for the registration of plumbers would be introduced in the Indiana Legislature.**

1892

Most people were too much interested in the reelection of Grover Cleveland as President to pay much attention to a queer contraption that grunted, wheezed and finally ran under its own power frightening all the

1889 . . . Our industry's folding bathtub made its appearance

horses for miles. The fact that it was America's first gasoline automobile didn't excite anyone. It would never replace the horse. Over in Germany a man named Diesel was tinkering with an engine which ran on heavy fuel oil and in a pinch would also use powdered coal or skimmed milk. **The newspapers gave considerable space to a cholera epidemic in Hamburg, Germany—one of the worst in modern history. Letters were written to the editors advancing**

the idea that the plague was caused by polluted water supply—plumbing and public health were on the threshold of a new day. New York passed a bill providing for the examination of plumbers in the cities.

1893

Thousand of people from all over the country disregarded the financial panic and went to Chicago to see the World's Columbian Exposition. **Domestic Engineering reported the organization of the Heating Boiler Manufacturers' Assn.** Unemployment in New York City rose to the unheard of figure of 80,000

1895 . . . Man on foot with red flag required to precede all automobiles . . . at the same time our industry pioneered tests on sewage disposal with septic tanks

and there were many who said that the country was going to the dogs. **With this in the air the fact that Lawrence, Mass. had an epidemic of typhoid fever caused by polluted water supply aroused little excitement. The epidemic served one useful purpose, however—it led to experiments with sand filters which proved successful.** The motion picture industry was launched by Edison's invention of the first practical motion picture machine.

1894

In the United States the depression continued, labor troubles spread. Strikes, notably in Chicago and on the Pacific Coast, had to be settled by calling out the army. In the Far East, Japan declared war on China. **The first annual meeting of the American Society of Heating and Ventilating Engineers was held. Domestic Engineering undertook a long-term campaign to combat "plumber jokes."**

1895

Chicago papers were full of two prize contests—one of $500 for the best name to give the new horseless carriages, and the other of ten times that amount for a race in those carriages from Jackson Park to Evanston, Ill. "Motorcycle" won the naming contest with "petrocar" and "quadricycle" close behind. The word, "automobile" wasn't even suggested. Steven Duryea won the race to Evanston by default; none of the rest of the cars could go the gruelling distance of nearly 35 miles. **Further experiments in sewage treatment were being conducted and the use of septic tanks for the purpose was being advocated. The New York Legislature passed a bill requiring all cities of over 50,000 population to build public bath houses providing hot and cold running water.** In France, Roentgen discovered the X-Ray. **Domestic Engineering reported progress of the Eastern and the Central Supply Assn.**

1896

In a small cottage in Detroit, the president of the Detroit Edison Co. called on one of his employees named Ford and said: "Henry, I'll raise your salary $25.00 a month if you'll go home after work and go to bed instead of tinkering with that fool gas engine of yours." The whole country was excited over the political campaign between McKinley and Bryan. Free coinage of silver was an important topic and Bryan's speech, "You shall not press down upon the brow of labor this crown of thorns," was widely quoted. Despite the talk of silver, thousands of men quit their jobs to join in the Klondike gold rush. In Italy a young inventor confounded doubters by sending an electric signal without wires a distance of nearly a mile. His name was Marconi. In England there was great rejoicing over the repeal of a law requiring all automobiles to be preceded by a man on foot carrying a red flag. **A rubber stopper for lavatories and bathtubs was being advertised in Domestic Engineering as "the only rubber stopper in the market . . . that will stand hot water; will not soften and come apart." Yonkers opened the first fully equipped public bath house.**

1897

A few newspapers were beginning to complain about the overcrowding of the roads since there were 90 cars in the country that could run. There was a considerable boom in the sheet metal business when the Government started its Rural Free Delivery and letter boxes were fabricated furiously.

1898

The battleship Maine was blown up and this country went to war with Splain with the slogan — "Remember the Maine." Admiral Dewey become a national hero for his victory at the battle of Manila Bay and small boys went about quoting, "You may fire when ready, Gridley," a phrase which also was used by a manufacturer in his Domestic Engineering advertising. In France the Curies discovered radium.

1899

In the Philippines an insurrection was being put down. In this country the Government was putting down big business with anti-trust suits. **Low tank and closet combinations no longer were an oddity in the industry. A water heater that was submerged in a bathtub and able to heat thirty gallons of water in twenty minutes was enjoying a healthy sale.**

1900

Readers of a Detroit Sunday paper were properly impressed when they read:—"The modern automobileer, began by giving his steed three or four sharp jerks with a lever at the right hand side of the seat. By and by a man opened the factory door and with incomparable swiftness the machine picked up its speed. The puffings of the machine assumed a higher key. She was flying along about eight miles per hour." **Oil burners were introduced from Russia and some experts predicted that eventually they might find a place in the heating field.** The Boxer Rebellion in China was cause for considerable shaking of heads all over the world. **Domestic Engineering said, "There is a well-grounded belief in the minds of master plumbers that they should be merchants, and so they should . . ."**

1901

President McKinley was assassinated at Buffalo and Theodore Roosevelt assumed office. **What is probably the outstanding milestone in municipal sanitation took place when New York City passed the Tenement House Act which provided that not only must modern, sanitary water closets be placed in all new construction, but private closets with their use limited to a single family and located inside the apartment used by that family be provided.** The death of Queen Victoria plunged England into mourning, and Marconi signalled the letter "S" across the Atlantic.

1902

Here ended an epoch in plumbing for in this year marble lavatories slowly

1900 . . . The first oil burners were introduced

began to fade away. Up to this time 90 per cent of all lavatories were of this construction but now the percentage began to change and change fast. Rayon first began to be produced but where it would find a use was not quite clear. **An invention was patented for a triple jet water closet—the first of its kind.**

1903

In Minnesota a family named Lind-

bergh named their new son Charles Augustus. Down in the Carolinas two brothers caused a certain amount of local excitement by placing a motor in a glider they had built in their bicycle shop and then going through the air with it for about a hundred feet.

1904

After considerable argument over patents the first siphon water closet was manufactured. The United States purchased the ground for the Panama Canal.

1905

A wall-hung type water closet was introduced on the market. Plumbers were selling buggy washing equipment with good success. In those days the Beef Trust was a combination of packers who were forced to disband in the Government's anti-trust activities. Through the offices of President Roosevelt a peace treaty was arranged between Japan and Russia after a year of war. **Los Angeles formed a board of plumbing commissioners. Domestic Engineering explained the meaning of the British thermal unit.**

1914 . . . DOMESTIC ENGINEERING'S Bath-a-day campaign . . .

1928 . . . First edition of the "Story of the Bath"

1906

San Francisco was devastated by a great fire and earthquake. A rigid meat inspection act was passed by Congress. Alaska was allowed to send a delegate to Congress.

1907

Oklahoma was admitted as a state. A treaty was ratified with Santo Domingo. The Pure Food Act went into effect.

1908

President Taft assumed office. **Sanitation took another step forward when chlorination of municipal water supply was started at Jersey City. Powder rather than liquid chlorine was used.** This was the year Wilbur Wright set a new distance record for airplanes of 26 miles. Jack Johnson was matched against the white hope, Tommy Burns, for the heavyweight championship of the world. A man was arrested for driving in Central Park with skid chains on his automobile. The arresting officer contended that the streets would last no time at that rate.

1909

The world sat back and gasped when Bleriot flew his airplane across the English Channel.

1910

The Government set up a postal savings bank system. **Push button water faucets made their appearance. Hand pumps for attachment on the kitchen sink were being advertised.**

1911

The first self-starter was placed in an automobile. In a previous attempt the starter had succeeded in starting the engine, but the engine had not been successful in starting the car. Amundsen discovered the South Pole and **the first systematic formulas for air conditioning computations were published.**

1912

New Mexico and Arizona were admitted as states, bringing the total number up to 48. **The first small, domestic, underfeed stoker made its appearance on the Pacific Coast.** Theodore Roosevelt and his Bull Moose organization split the Republican party, paving the way for Wilson's election to the presidency. A new queen of the seas sailed from England. Her name was the Titanic. The voyage was never completed—ramming an iceberg, she sank with a terrible loss of life.

1913

Trouble with Mexico occupied considerable space in the newspapers. **A bandit named Villa equipped his tent with a bathtub** and worried two continents by his complete disregard of international law. Passage of the sixteenth amendment gave Congress the power to levy direct taxes. The income tax (which came as a result) was not too unpopular since the tax was small. Mailmen were worried over increased loads as the parcel post service was started. **Domestic Engineering accelerated its campaign for public restrooms.**

1914

The Austrian Archduke Ferdinand was assassinated by a member of a secret revolutionary society. Within a few days Europe was at war. Another presidential election saw Wilson reelected. Relations with Mexico became more strained and United States troops occupied Vera Cruz. In the St. Lawrence the liner, Empress of Ireland, was rammed by a freighter and sunk with the loss of 1,023 lives. Celebrations marked completion of work on the Panama Canal.

Domestic Engineering in an editorial advocated the standardization of plumbing codes through the cooperative efforts of Federal and State Governments. The entire plumbing and heating industry adopted a new slogan —"A Bath a Day." As a result of the European war, exports to South America from this country picked up sharply and Domestic Engineering published a Spanish supplement to promote the sale of plumbing and heating products in South America.

1915

An integral tank and closet bowl combination was invented. The Lusitania was torpedoed and sunk with great loss of life including 124 American citizens. **Union wages for journeymen plumbers were 75c per hour and the average work week for the trade was 44 hours.**

1916

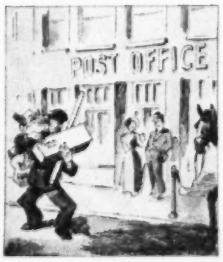
There were more than 2,600 labor strikes throughout the country. **Mixing valves for showers were fairly common although the showers themselves usually consisted of a brass ring suspended over the tub from which hung a shower curtain. There was plenty of exposed piping and in numerous cases rubber tubing for carrying the water overhead.**

1917

The United States declared war upon Germany and began sending troops to France. **Rotary oil burners began to be advertised. Garbage burning hot water heaters were being pushed extensively by the trade. A packless radiator valve was introduced.** The United States acquired the Virgin Islands by purchase. Czar Nicholas was deposed and the Union of Socialist Soviet Republics was formed. H. L. Mencken perpetrated his bathtub hoax.

1918

The Armistice was signed marking an end of the World War and President Wilson sailed to attend the peace conference, the first president to take such action while in office. People in New York City and in Washington could send letters back and forth by the first air mail service at a cost of 24c an ounce.



1913 . . . Parcel post service was started and DOMESTIC ENGINEERING started the campaign for public restrooms

1919

There was a sudden rush on the part of many people to protect themselves

from a long drought resulting from the passage of the eighteenth amendment. **In other sections the drought was over—a result of Domestic Engineering's water systems campaign.** Alcock and Brown of England were hailed as heroes for flying the Atlantic.

1920

Wiseacres again predicted the country was going to the dogs when the nineteenth amendment giving women the right to vote was passed. The first

1919 . . . The nineteenth amendment was ratified . . . In the same year the water systems campaign was started by DOMESTIC ENGINEERING

regular radio broadcasting station in the United States went into operation at Pittsburgh and the few owners of receiving sets nearly jumped out of their earphones when they heard KDKA's station announcement followed by a program of phonograph records. High hopes for everlasting world peace were set up by the formation of the League of Nations.

1921

At the invitation of President Harding, Great Britain, France, Japan, Italy and Belgium attended a conference on the limitation of armaments. There was considerable rejoicing over a reduction in the income tax. **Journeymen plumbers were still working 44 hours a week but their hourly rate of pay had increased to $1.25. Domestic Engineering offered 31 cash prizes to contractor-dealers for best merchandising plans and methods.**

1922

Again hopes for an everlasting peace soared when a 5-5-3 naval ratio was agreed upon by Great Britain, Japan and the United States. Labor troubles were again rampant throughout the country. The Herrin massacre of non-striking coal miners aroused high feeling and repercussions were felt in politics. Practically all bituminous and anthracite mines were shut down.

1923

President Harding died and Coolidge became president. A nation-wide strike of railroad shopmen took place and the Government appointed an arbitration board to mediate differences. A former newspaper editor, Benito Mussolini, assumed leadership of Italy. News of the great Tokyo earthquake filled the newspapers.

1924

Coolidge and Dawes were elected in a political campaign featured by a third party headed by Senator LaFollette. **Magazine fed boilers were quite common. Gas for house heating was coming into prominence. An individual shower cabinet no longer was an oddity.**

1925

William Jennings Bryan died. Paul Von Hindenburg was elected president of the German Republic. The dirigible Shenandoah broke up in a storm and was destroyed. **Insurance companies announced that due to greater control of disease, better living conditions and increased sanitation, the average life expectancy had risen to over 58 years.** Commander Byrd flew over the North Pole. **Domestic Engineering called attention to the increasingly important swimming pool market.**

1926

The word "we" took on an added significance when Lindbergh flew the Atlantic. Over a Black Hills date line newspapers carried the phrase—"I do not choose to run"—When President Coolidge spiked rumors of a third term. Luther Burbank died, and television was invented by Baird in England.

1927

Domestic Engineering's campaign for home modernization helped our industry to keep busy despite the decrease in residential construction.

1928

Herbert Hoover was elected president. **The average work week for journeymen plumbers dropped to 40 hours. Domestic Engineering introduced "The Story of the Bath" as part of the Bath-a-Day campaign.**

1929

The stock market pleased everyone by setting all time new highs and then confounded everyone by setting new lows. Commander Byrd flew over the South Pole. **Jacketed boilers began making their appearance on the market in large numbers.** The Young plan for German reparation payments was adopted.

1930

Trouble was brewing in Spain, the military dictatorship was forced to resign and the throne began to totter. The Chrysler Building was the world's tallest. **Water heaters were shedding their fancywork and taking on a streamlined appearance.** The stock market was reaching new lows and women's dresses were reaching new highs daily. **Basement modernization was being advanced by Domestic Engineering as a sales approach for plumbing and heating contractor-dealers.**

1931

Thomas A. Edison died leaving behind him an unapproached record of accomplishment. A republic was established in Spain. Great hope was held out for curing the depression with a moratorium on war debts.

1932

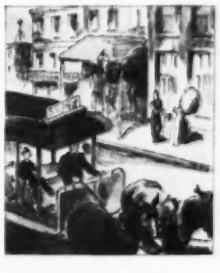
Roosevelt was elected president. Unemployment throughout the country reached a total of over 14,000,000. Great Britain gave up her long established theory of free trade and instigated a tariff. Von Hindenburg was reelected president of Germany. **A consumer campaign to aid the industry—"Spend for the Home"—was announced by Domestic Engineering.**

1933

A bank holiday was declared. An ex-paperhanger, Adolph Hitler, was made chancellor of Germany. In Chicago a Century of Progress Exposition opened. The dirigible Akron was destroyed and with it this country's experiments with lighter-than-air craft. The figure 3.2 was on the tongues of many. Later in the year prohibition was repealed. **Nearly a hundred persons died of ambic dysentery spread by defective plumbing in two Chicago hotels.**

1934

King Alexander of Yugoslavia was assassinated in France. **Dramatizing the benefits of the new Federal Housing Act was Domestic Engineering's first FHA campaign and contest.** From Canada came the outstanding news event of the calendar year—from



1889 . . . The horse drawn streetcar made its first appearance in the period which saw the earliest plumbing codes enacted

Callender, Ontario, to be exact—for it was there that the Dionne quintuplets were born.

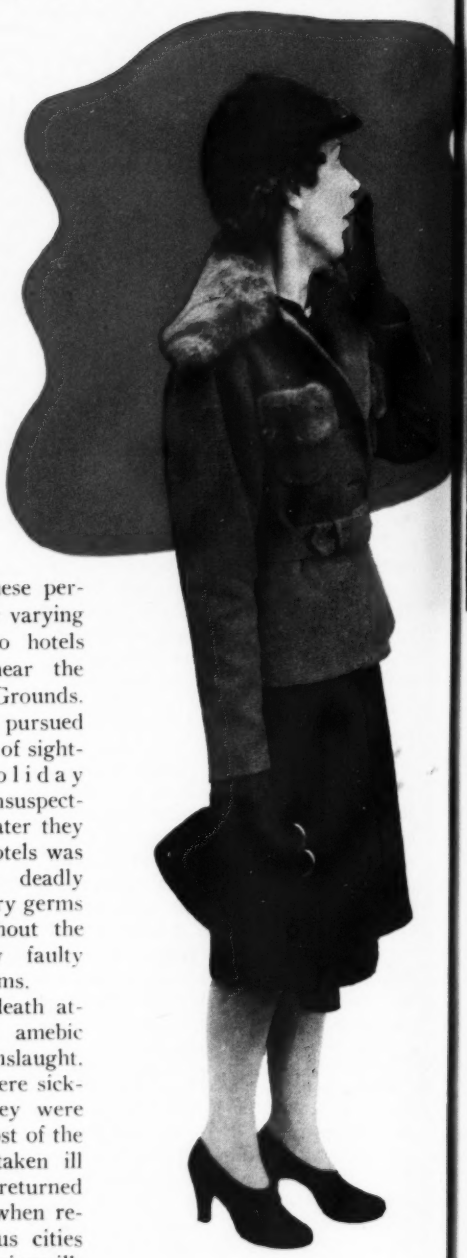
1935

Economists predicted that the great depression had about run its course and a few business curves actually got off the floor to bear them out. **FHA was the greatest sales opportunity for the plumbing and heating industry. Domestic Engineering united all the merchandising forces of the whole industry under its second FHA prize campaign and its Leaders in the Upswing Campaign.**

(Continued on Page 148)

What Tragedies Have Come

Our industry does not neglect its duty to publicize to the fullest the facts on disasters which occur as a result of handyman tinkering with plumbing and heating installations



IN the accompanying photograph, Mrs. Jones is exclaiming in horror at the scene of chaos, death and destruction which followed the explosion of the heating system in a New London, Texas public school. A photograph can indicate only in small measure that extent of the tragedy, which was later traced to handyman work on the heating system.

More specifically, on the afternoon of March 18, 1937, the stillness of the New London, Texas area was shattered by a terrific blast as the school exploded. Confusion followed the blast. Hospitals, churches and other schools were converted into impromptu hospitals and morgues as volunteer rescue crews lifted mangled, twisted bodies from the ruins. Neighboring cities rushed to the rescue of the stricken community. The nation recoiled in horror and messages of condolence and offers of aid poured in from all parts of the world.

The explosion left small evidence from which to deduce the cause of holocaust. However, the final explanation was that the blast resulted from an accumulation of gas within the building which accumulation resulted from a leak in the heating system. Reports showed evidence that the heating system had not been inspected by officials and that qualified heating contractors had not been engaged to inspect the system or to install adequate safety devices.

Two hundred and ninety-four pupils and teachers were killed, and many more were injured. No more dramatic instance could be cited to make the vital point that heating system *must* be installed by persons qualified to make such installations, that heating systems in schools and other public buildings *must* be protected by every practicable safety device, that unqualified handymen *must not* be allowed to install such heating systems or permitted to tamper with them after they have been installed.

In the summer of 1933 approximately eight and one-half million persons journeyed to Chicago to visit the Century of Progress Exposition. Approximately eighty thousand of these persons stayed for varying periods at two hotels located near the World's Fair Grounds. They merrily pursued their schedules of sightseeing and holiday making, all unsuspecting that the water they drank at the hotels was polluted with deadly amebic dysentery germs spread throughout the institutions by faulty plumbing systems.

No sudden-death attack was the amebic dysentery onslaught. Few visitors were sickened while they were in Chicago; most of the victims were taken ill after they had returned home. Later, when reports in various cities of death and serious illness from amebic dysentery began to be noticed, a systematic check-up was made. The plague was reported from more than 400 cities scattered in 43 states, three Canadian provinces and Hawaii. Medical authorities searched frantically for an explanation and a common source of infection. As a matter of fact, the source of the disease was not discovered until permanent residents of the two Chicago hotels became infected and their cases were diagnosed as amebic dysentery. This was the first step.

Absence of proper inspection by qualified experts and officials resulted in the loss of 294 lives in the New London, Texas, school disaster

The second was to trace the outbreak to water polluted through cross connections in the plumbing systems of the two hotels. Physicians repeatedly had previously pooh-poohed the theory that amebic dysentery could be water borne. But . . . the United States Public Health Service in its official report definitely attributed the spread of the disease to bad plumbing, and there is now no question that the epidemic was spread in this way.

It was revealed by the United States Public Health Service that one of the two hotels furnished part of the water supply for the second. After describing the overloading of sewers during the period in which the epidemic was permitted to gain headway the report stated that the two major points of possible pollution which are considered to have resulted in water-borne infections in the two hotels were:

"(a) Two cross-connections in hotel X which joined an overhead sewer to condenser-water discharge pipes. This water, which had been first used for cooling purposes, was distributed throughout hotel X and to the upper floors of hotel Z. The pollution of this would account for the observed parallelism of the incidence of infection in the two hotels.

"(b) An old, rotting wooden plug in an overhead sewer which permitted leakage into the cooled drinking-water tank below. This would account for infection among guests and patrons in hotel X only, because this water system was limited to that hotel."

Then the report attributed the epidemic directly to this faulty plumbing: "While other potential health hazards were found by detailed inspection at both hotels, they are not considered to have contributed to any considerable degree, if at all, to the epidemic."

When the dangerous plumbing in the two hotels was corrected, the occurrence of new cases of infection ceased. There were ninety-eight deaths directly attributable to the faulty plumbing; and one thousand four hundred and nine cases of amebic dysentery were reported —all of which were traced to the two hotels.

Our industry has followed the practice of avoiding the use of fear psychology in its merchandising. Periodically, however, explosions and epidemics with consequent loss of property and life result from improper installation and maintenance of plumbing and heating products. When these disasters occur our industry cannot stand idly by and fail to inform the public on the true causes of the disasters. Even though such educational efforts by our industry may not result in increased sales of plumbing and heating products, our industry none the less insists that the circumstances be known by the public.

When the facts concerning such tragedies are properly disseminated to the public they serve to emphasize that:

(1) Worn-out, outmoded or unprotected plumbing and heating products can be deadly.

(2) The master plumber's advice is needed in the selection and purchase of plumbing and heating products.

(3) Unqualified persons must not be permitted to install plumbing and heating products, or to tamper with them after they have been installed.

It is vital to the public that it receive the full details regarding such explosions and epidemics. That is why DOMESTIC ENGINEERING describes these disasters as they occur, furnishes newspaper releases so that the public may be informed of the facts.

Auxiliaries are active in charity work, energetic in promoting sanitation, and tireless in the public's behalf

What is an Auxiliary .....

"YOU are cordially invited to attend a card and bunco party, to be given in the.....Hotel on ....."

"We are glad to inform you that we have examined your restrooms and washrooms, and have found them to be maintained in a sanitary manner. The members of the Auxiliary to the ..... Master Plumbers Assn. want you to know that they appreciate the care and effort you expend in protecting the health of theater-goers through adequate and well maintained washrooms."

These two communications, the first an invitation to a social function and the second a letter to the manager of a motion picture theater, give some indication of the scope of activities of a woman's auxiliary to a master plumbers association. What else do auxiliaries do?

Many local chapters (Kansas City, Mo. and others) sew thousands of garments for the Needlework Guild or other similar local organizations. This clothing is donated to needy families.

The auxiliaries donate money to the national Student Loan Fund, which provides loans to daughters of master plumbers for schooling.

The auxiliaries donate money for the scholarship program of the National Assn. of Master Plumbers. This program offers full four-year scholarships to sons of

members of the N.A.M.P. for a course in plumbing and heating engineering at Massachusetts Institute of Technology.

The auxiliaries lend active support to a great number of worthy local and national charities extending far beyond the limits of the auxiliary, the associations of master plumbers, and the industry. They take part in Red Cross and community chest drives, in disaster relief programs. At Christmas they make up special gift baskets for the poor. Their activities along these lines are limited only by their resources and the need of their aid.

In many cases, auxiliaries give actual and tangible support to the master plumbers associations which sponsor them by promoting health-protecting codes and legislation.

The auxiliaries (Florida chapters, for example) sponsor yearly essay contests for school pupils. Prizes are awarded for the best themes or essays on sanitation written by the students. In preparing these essays the pupils cannot help gaining a better understanding of the value of sanitation and a more thorough appreciation of the service which the master plumber performs for civilization.

Allow me to congratulate Domestic Engineering on its 50th Anniversary and wish for it many more years of continued success...The national auxiliaries may well be proud of the many active charities engaged in by the various chapters throughout the country. Socially, the friendships developed are really gems of the rarest nature. Truly, we are organized for a worthwhile purpose.—Marcella C. Rose, Cambridge, Mass., president, Women's Auxiliary to the National Assn. of Master Plumbers.

At every Christmas time the Minneapolis auxiliary conducts a window display contest for plumbing and heating contractor-dealers. Last year the competition attracted a large number of entrants, and many excellent sales-producing windows resulted. The contest was open only to plumbing and heating contractors. The judges were impartial window display experts. In this case the auxiliary contributed in a very real sense to the local prosperity of the industry, for the windows sold merchandise.

The Minneapolis auxiliary also conducts washroom inspection campaigns (see typical letter at beginning of this article) in common with other chapters. The members are not afraid to lend their names to such investigations. Here is the manner in which a recent campaign was carried out: At a regular meeting a roster of local motion picture theaters was checked off, and members volunteered to investigate the theaters nearest their homes.

The investigations revealed that a majority of the places were kept in accordance with ordinances and good housekeeping practices. Commendatory letters were sent to the managers of these movie houses. To the managers of theaters whose sanitation facilities were inadequate, insanitary or poorly maintained, a different kind of letter, suggesting that these deficiencies be remedied, was sent. In most instances courteous replies were received. After a reasonable time these places were rechecked, and if conditions had not been improved, the facts were called to the attention of the master plumbers association and the health department.

So many local auxiliaries conduct campaigns similar to the Minneapolis effort that this type of militant and public-spirited action has become typical of auxiliaries in general. The members check department stores, bus and railroad depots, service stations, restaurants and all kinds of public and semi-public buildings.

In another instance, an auxiliary cooperating with the local library discovered that the printed material on sanitation and sanitary equipment was out-of-date and inadequate. The matter was brought before the chapter membership and the result was that the auxiliary library chairman presented a file of up-to-date materials and illustrations to the library.

In many cases auxiliaries have been directly instrumental in securing safe and sanitary plumbing and heating equipment for schools.

The activities described above by no means exhaust the list of functions of auxiliaries to master plumbers associations; their constructive activities are, in fact, limited only by the ingenuity or resources of their memberships. In addition to such efforts, the auxiliaries hold periodic luncheons, dinners, seasonal affairs, birthday parties, etc. They also arrange numerous and enjoyable entertainments for the members of the master plumbers associations. One net result of the social program inevitably is to cement friendships among contractor-dealers.

A women's auxiliary in the plumbing and heating industry is an organization of wives, mothers, daughters, sisters and nieces of men who are members in good standing in the master plumbers' association. A widow may also become a member if her husband was an association member at the time of his death.

The auxiliaries parallel the master plumbers associations in organization. Thus there are local chapters and state chapters and the one central Women's Auxiliary to the National Assn. of Master Plumbers. The state groups meet yearly in the city and at the time of the state master plumber conventions. The national auxiliary holds its annual convention at the same time and in the same city as the annual meeting of the N.A.M.P. The first session is a joint meeting of the two groups. At this get-together, the contractors take the opportunity to express their real appreciation for the services rendered to the master plumbers, to the associations, to the industry and to the public by the auxiliaries.

The extent of this appreciation is indicated also by a statement attributed to N.A.M.P. Pres. Henry S. Blank by Mrs. Mabel B. Doench, past national auxiliary president, "There is no man in the association who is so big that the women's auxiliary is not a good place for his wife."

In the accompanying photograph Mrs. Jones is shown

(Continued on Page 142)

What is a Laboratory .....

It tests and demonstrates plumbing and heating devices and installations to discover and illustrate conditions under which they may prove hazardous

WELL, I'll be . . .," said a citizen after he had visited a plumbing testing and demonstrating laboratory, "I wouldn't have believed it if I hadn't seen it." What he wouldn't have believed is that an innocent looking plumbing installation, if improperly made, may be a positive menace to his health and to the health of his community.

Herein lies one of the chief functions of the demonstration and testing laboratory, namely, its educational value. Under this heading, it might be pointed out that not only does it educate the consuming public, it educates manufacturers, wholesalers, plumbing and heating contractors, plumbing inspectors, civic groups, building owners and others.

For example, there is the instance of one air conditioning engineer who submitted to a prominent municipal testing laboratory an installation design. The laboratory engineers in charge studied it and learned that it was possible to back-siphon waste water through the piping connections. They explained their conclusions but the air conditioning engineer maintained it could not happen. The final answer came in connecting the air conditioning equipment to the supply piping in the laboratory. A vacuum was produced and water from the waste siphoned through the equipment and into the water supply piping. If this installation had been made in the building, the waste water could have been redistributed through fixtures such as drinking fountains and lavatories, upon the resumption of pressure. In the words of the supervisor of the laboratory, "It did not take long to convince this person as to the necessity for changes in design when he was able to see an actual demonstration."

This brings to the front a second function of testing laboratories which is to engender confidence based on impartiality and a genuine desire to promote the development of safe equipment and installations. Plumbing laboratories have an outstanding opportunity to foster and bring about improvements in existing and future installations by bringing together, on a common plane of understanding, all factors involved in such installations. Here is where the designers and manufacturers of existing equipment and new devices may test their specific products to determine their operation and probable effect upon the system to which they may be connected.

Here, the plumbing inspection and sanitary engineering departments of municipalities have an opportunity of obtaining first-hand information on new developments and what they must look for in the discharge of their duties.

Here the contracting branch of the industry can find information which will serve as a guide in the coordination and installation of equipment.

Current questions of most importance to the public, in connection with testing laboratories are: (A) Will this fixture or pipe arrangement permit contamination of the water supply by a reversal of flow or back-siphonage? (B) If so, how can this dangerous condition be prevented? (C) Is this or that device, which is offered to correct the foregoing conditions, completely effective in operation? (D) How can architects, engineers, city officials and the public be taught that this matter of back-siphonage is a real danger and not merely a theoretical possibility.

The greatest benefits to be derived from a plumbing testing and demonstrating laboratory lie in its educational possibilities. The common siphoning of the contents of an upstairs water closet into the water supply line and the discharge of this water through drinking fountains and other plumbing fixtures is demonstrated very clearly when laboratory facilities are available. Laboratories also serve as a means for accumulating additional scientific facts.

The laboratory helps to answer these questions and serves to bring out additional facts. As an example at one time it was assumed that the water pressure is always nearly constant; that the water would always flow in the same direction; and that the pressure would always be positive. As a result certain equipment; for operation in connection with water supply lines, was

Mrs. Jones here looks in on a group of engineers engaged in testing a piece of plumbing equipment in a laboratory

developed more or less on the basis of false premises.

Because of the peculiar behavior of water or mixtures of air and water in a piping system, the designer, engineer or inspector cannot always predict theoretically, just how a new idea in plumbing will function in an actual installation.

If a device is subjected to reasonable and practical tests the resultant opinion is placed on a firm foundation. A laboratory with facilities for testing new products, equipment or methods of installation can provide a valuable service to the public. Such work now is being carried on in laboratories throughout the country with consequent benefit to all concerned.

The major portion of a plumbing system is hidden in the walls or beneath the floor or yard of the building. The average property owner little realizes the importance of his plumbing system or its value to him until some defect or disaster puts it out of commission. His knowledge of water-borne diseases and how they may spread by poorly designed, faulty or improperly installed plumbing is generally vague. As a matter of fact it is unusual if he is able to identify even the most elementary basic parts of a plumbing system.

Unfortunately the knowledge both of disease causation and of modern sanitary requirements are so recent that some of the most respectable citizens cannot understand why they must have their plumbing installed by skilled mechanics under rigid inspection. But, a trip through a plumbing testing and demonstration labratory will change their impression and substitute understanding for ignorance.

Demonstration laboratories throughout the country are developing a healthy respect for plumbing, the regulation of plumbing, what is required to bring about a satisfactory installation and the various factors which are necessary to keep the installation satisfactory. Demonstration laboratories throughout the country are teaching the fact that health hazards may exist in plumbing systems whether they be big or little or whether they be skyscrapers or average residences.

The information in the foregoing description of a plumbing testing and demonstrating laboratory and its functions has been furnished by L. Glen Shields, associate sanitary engineer, Bureau of Plumbing, Detroit, John H. O'Neill, Louisiana Board of Health, New Orleans, and various other members of our industry.

What is Merchandising....

Creating demand, promoting acceptance of our industry's products and services—these and all other aggressive business building plans constitute merchandising

WHEN Mrs. Jones' husband drives his car into a service station and orders ten gallons of gasoline, that's a sale. When the attendant boosts the order 33⅓ per cent by selling Mr. Jones some lubricant to pour into his gasoline tank, that's merchandising. In this day of specialization where is there a service station attendant who will not try to boost his sales volume?

Apply this analogy to the clothing industry, to the amusement industry, to the home furnishings industry, to the food industry and to the various branches of the automobile industry—it will give you a general idea of the demands upon the consumer dollar aggressively in competition with the sales efforts of the plumbing and heating and air conditioning industry.

To meet this competition, plumbing and heating and air conditioning contractor-dealers have become merchandisers. Contractor-dealers have absorbed the basic principles of merchandising to such an extent that, consciously and unconsciously, they develop prospects and make actual sales at every opportunity.

When a contractor-dealer furnishes his journeyman with modern and completely equipped trucking facilities so that repair and installation work may be carried on with maximum speed and minimum effort he, in effect, reduces Mrs. Jones' sales resistance and her ability to say "No" to the purchase of needed or desired products of our industry.

When the contractor-dealer supplies his employees with clean uniforms and trains them in the most approved methods of cleanliness and neatness while working in Mrs. Jones' home, this is merely a way of making it easy for Mrs. Jones to call immediately when she learns that a certain plumbing or heating repair or improvement is needed or would be desirable.

Merchandising of plumbing, heating and air conditioning products goes beyond these accepted practices. Merchandising includes the policy of keeping abreast of the latest developments in sanitation and comfort made available through the technical advancements of our industry, and in passing these advancements along quickly and completely to Mrs. Jones for her benefit. The products of our industry are so vital to the well-being and satisfaction of the public that a distinct service is rendered when they are brought to the attention of Mrs. Jones and when she is impelled to take advantage of these developments. In short, our industry not only is charged with the duty of developing improvements for the furtherance of sanitation and comfort, its responsibility continues until those modern conveniences are in service and working for as large a portion of the American public as possible.

Briefly speaking, merchandising on the part of that branch of our industry which comes in contact with the consuming public is a rapidly growing and an increasingly vital function, both from the standpoint of service to the American public and from the angle of making possible further progress on the part of our industry. Future progress is based upon present acceptance.

That contractor dealers are fulfilling this function has been demonstrated in connection with FHA remodeling. Over 31 per cent of all money spent for the modernization and the repair of homes, generated through the FHA program, went for the purchase of plumbing and heating products and services.

A basic principle underlying the merchandising activities of plumbing and heating contractors, which has been observed in a wide survey of individual cases, is found in the contractor's continuance of operation. Repeat calls and customer satisfaction form the life of this business, and all merchandising activities originate from this.

Plumbing and heating contractors utilize a great many different types of advertising methods and mediums ranging all the way from newspaper and classified ads to radio plugs and programs. Last year's DOMESTIC ENGINEERING Business-Building Campaign revealed that contractors entered in the contest used direct mail in some form (75 per cent); classified telephone directory ads (60 per cent); window displays (55 per cent); signs and billboards (37 per cent); display ads in publications (25 per cent); house-to-house advertising, etc. (20 per cent); displays at fairs and special events (12 per cent).

Along sales promotion lines contractors are accustomed to instituting very dramatic programs. Cooking schools are conducted periodically by some contractors.

Others sponsor such events as "farmers' days" at which the benefits of plumbing and heating can be shown.

The complexion of the contracting branch of our industry has changed in the last fifteen years. There was a time when new construction, brought about by continuing and rapid extension of our population, occupied practically our entire attention. With the decline of business, starting in 1929, there was a corresponding decrease in new construction which forced attention to new possibilities for business and profit. The homes which constituted the new building market of 1910 to 1915 became the homes which constituted an altogether different market in 1929, namely, a remodeling market. Remodeling has developed to the point where it absorbs about 70 per cent of our industry's production.

With this remodeling business, and with the coming of the depression, still another factor entered into the plumbing and heating contracting business, the net result of which gave further impetus to merchandising. We have reference to the fact that when contractors approached home owners to remodel their plumbing and heating, additional improvements involving carpentry, painting, plastering and other building activities were necessary. In order to promote the sale of plumbing and heating remodeling jobs, it became increasingly necessary for the contractor to merchandise entire remodeling projects wherein he assumed full responsibility for the finished effect and sublet contracts involving the various supplementary building operations.

Merchandising is vital to our industry because through it Mrs. Jones is able to make direct comparisons between our services and the practices and values offered by other industries. The more favorably impressed Mrs. Jones becomes, the more receptive she will be to the benefits which our industry has to offer in improvements, in sanitation, comfort and convenience. The merchandising-contractor-dealer's show window is not only the show window to his place of business, it is the show window through which Mrs. Jones looks at our industry.

Many of the points of view in this article on merchandising were expressed by contractor entrants in DOMESTIC ENGINEERING'S *Business-Building contest. Additional special material was furnished for this issue by R. T. Morrill, Beloit, Wis. contractor, and Bricher Plumbing Company, Dayton, Ohio.*

What is a Cross Connection

DEATH certificates seldom if ever mention plumbing, for "plumbingitis" is not a recognized disease. Physicians' identify the germ as dysentery, typhoid or undulant fever, rarely give the proper discredit to the faulty plumbing which furnished the bacteria a place to germinate and a route of travel. Faulty plumbing in which cross connections are involved is the source of too many cases of such diseases.

For popular understanding, the term "cross connection" can be defined as any installation in the water supply system that brings pure water in contact with impure water, polluting the water that is to be used for human consumption. That is not an exact definition, but it is simple enough to give Mrs. Jones the general idea.

There are several kinds of plumbing inter-connections, some of which make possible the pollution of pure water, while other actual physical cross connections may not allow the pollution of pure water. Therefore, some engineers criticize the use of the term "cross connection" to indicate an undesirable condition, and in view of this the term "backflow" and "backflow connection" are being used.

A technical sub-group of Sub-Committee No. 12 of the American Standards Assn. Committee A40 has developed the following clarification of terms:

"Backflow" means the flow of impure water into a pure water system. The flow may be caused by gravity, vacuum or other pressure differential.

"Backflow connection" (popularly called cross connection) is any arrangement whereby backflow can occur.

"Air gap" in a water supply system for plumbing fixtures is considered as the vertical distance between the supply fitting outlet (spout) and the highest possible water level in the receptor (when flooded).

"Safe air gap" is any gap greater than the maximum gap across which backflow can occur under any condition of service.

"Back-siphonage" is one form of backflow caused by a vacuum in the water supply lines.

Plumbing contractors know that backflow, due to vacuum, can occur with different types of fixtures and water piping systems unless preventive means are employed, and that the probable frequency of vacuum backflow conditions at different points varies and depends on: pipe size proportions; frequency of high flow rates, i.e., g.p.m. discharge; and loss of pressure in water main or supply piping such as may be caused by a fractured pipe or heavy demands by the fire department.

Backflow from any source in a water supply piping system may pollute the water delivered to any other fixture connected to the same supply piping. Backflow from any water supply piping system through the service pipe into the water main may pollute the water delivered to any other building supplied from the same water main thus conceivably endangering a community.

Backflow can occur when water of questionable purity from some source other than the regular water mains is allowed, at times, to flow through the same pipes which normally carry the pure water from the mains. No such auxiliary supplies ever should be connected to regular pure water supply piping.

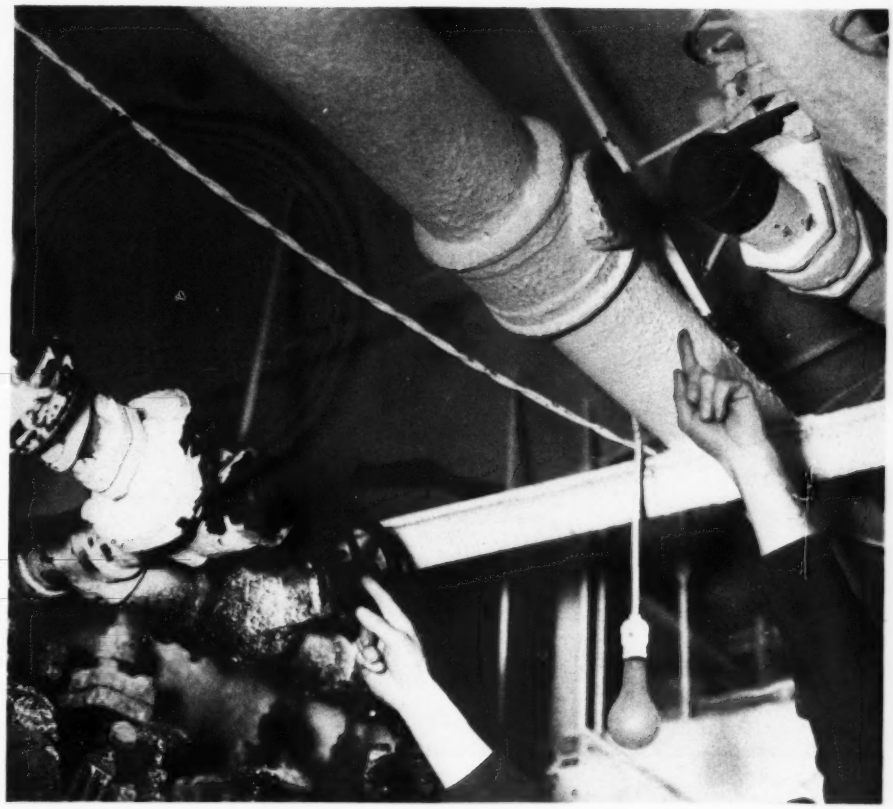
Safe air gaps and back-siphonage preventers (vacuum breakers) are two recognized means of avoiding backflow. The back-siphonage preventer is a device for installation in a water supply pipe to prevent back-siphonage of water into the water supply system from the connections on its outlet end. The two major tasks of safe air gaps and back-siphonage preventers are to protect the pure water in the water mains and to protect the water in the supply piping system of buildings.

To drink the mixture from a recently used water closet, to bathe in the waste liquids discharged from a urinal, to plunge into the diluted contents of a bed pan, to purge a wound with the drainage from an operating table, is worse than disgusting. Such conditions may result from the existence of a plumbing cross connection. Irrefutable records of tragedies stand ready to testify as to the frequency of occurrence of these revolting dangers to the health of the public.

The water in the mains can be protected against backflow from the piping in a building by running the service pipe directly from the main to a point over an open tank, with a safe air gap between the outlet end of the supply nozzle and the flood level point of the tank. Positively no other branch tappings should be run from this service pipe. The discharge piping from the tank is to be used only to supply water to fixtures, and at no point should it be connected to the service pipe running from the water main to the tank.

The use of a "looped" service pipe, elevated more than 34 ft. vertically from the highest branch supply pipe or fixture spout that is connected to the downleg, has been suggested. It is claimed that such a loop would prevent backflow from the supply piping system through the service pipe to the water main. But it is believed that the best loop of this kind would not provide the same degree of protection as a safe air gap. Furthermore, a loop of correct size and elevation would present a difficult instal-

Any device or equipment supplied with water from a pipe which is connected with the drinking water supply should be so arranged that water which leaves the supply pipe cannot, under any circumstances, be drawn back into the supply pipe



Faulty plumbing in which cross connections have been permitted to exist, has been found the source of too many cases of disease. The remedy is easily available

lation consideration.

In many installations the "service pipe air gap system" may not be practicable, and in such cases it becomes necessary to protect the water in the mains indirectly by protecting the water in the supply piping systems in the various buildings concerned.

This is accomplished by requiring that each fixture shall have a safe air gap, or that each fixture shall be provided with approved back-siphonage preventers. Protection against backflow at each fixture or point where water discharges from supply piping is of major importance because other fixtures connected to the same supply piping system are thereby protected, and because added protection is provided for the water main which indirectly protects other buildings supplied by the same water main.

At the present time there is no recognized satisfactory means of protecting a whole system or group of fixtures in any other manner than individually.

The above discussion has concerned mainly the more subtle forms of back-siphonage such as may occur in common types of plumbing fixtures. But, some of the most terrible disease-disasters have occurred as a result of handyman tampering with water supply and waste pipes, wherein the handyman, without an understanding of the dangers involved, has made an actual inter-connection of sewage pipes to pure water pipes.

Among those who made valuable contributions to this analysis are R. H. Zinkil, chairman of an American Standards Assn. sub-committee on plumbing; H. E. Babbitt, professor of sanitary engineering, University of Illinois; and Walter H. Smith, plumbing inspector, Wilmington, Del. Others who contributed comments on related subjects also helped to make this feature possible.

Local, regional, state and national contractors' associations meet periodically to examine and express group aims and policies; to chart activities and functions; to draft plans for legislative and educational programs

What is a Contractors' Association . .

ASSOCIATIONS of plumbing and heating contractors may be local, state, regional or national in character. In many cases they are inter-related. Thus a local master plumbers' association may be connected with a state association of master plumbers, all of its membership being also enrolled in the state group. The state association, in turn, may be connected with its respective national association, and all of its members are then automatically members of the national body.

How may a local association promote the interests of its members? First, it may create a code of business ethics for its members which, while it may be unwritten, is yet effective because of group opinion. Business ethics in any industry, plumbing or otherwise, act to raise standards among members of that industry.

This does not imply the elimination of competition, for competition among contractors in those cities having the best organized associations may be and generally is of the fiercest. Strong contractors build strong associations; strong associations build strong contractors; and strong contractors make for strong competition.

Second, the local association educates its members in technical and business practices. On the technical side the association is expected to interpret code provisions, to give manufacturer and wholesaler representatives the opportunity to explain products and installation methods, and so forth. On the business side the members expect their association to keep them abreast of bookkeeping, collection, cost-finding and similar essentials to the successful operation of businesses. The association also

Codes of ethics, business competition, prosperity for its members and the confidence and good will of the public it serves—all these are praiseworthy goals of contractors' associations

serves as a clearing house for discussions and explanations of effective merchandising practices. The association may operate a credit bureau.

Third, the local association promotes friendship and understanding among members, members who remain competitors but become friends. The sense of unity resulting is altogether wholesome.

All of these things are required of a local contractors' association for the benefits of its members. How do these activities serve the industry as a whole?

It is obvious, of course, that the manufacturer and wholesaler branches prosper most when they have aggressive, progressive and able retail outlets. Thus every action of the local association which aids contractors become better advertisers, merchandisers, salesmen, installers is of direct benefit to the industry as a whole. The entire industry benefits when a contractors' association, in its united strength, resists an unwarranted encroachment from some other industry which wishes to take some part of the contractor's business. From time to time this happens even though that other industry may not be so well qualified to handle it. Contractors who do not belong to the association also benefit by the mere fact that they are part of the industry benefitted.

It is also obvious that association activities which assist the prosperity of plumbing contractors also serve the general prosperity. Society gains when its businessmen are solidly constituted, well fortified with reserves.

In addition, and most important, the local plumbing contractors' association is called upon to serve the public in ways which are peculiarly its own. One of the most vital of such services is the sponsorship and defense of adequate plumbing codes enacted to preserve public health. The local association by its very nature is a powerful promoter and protector of needed plumbing legislation. In addition, the contractors' association can be expected to take part in civic movements in the same sense that fraternal organizations, Kiwanis Clubs and other public-spirited organizations do.

The activities of regional and state contractors' associations are extensions of local activities having similar objectives. The larger group is intended to support the smaller ones comprising its membership, realizing that the strength of the regional or state association is dependent upon the combined strength of its components. The state body serves as a clearing house for its local groups just as each local association serves as a clearing house for its individual members.

Of course the state association assumes functions distinctively its own. A principal responsibility is to keep in close touch with the legislature, to promote bills which it conceives to be in the interest of the plumbing and heating industry and the public, and to oppose bills which it believes would injure those interests. To attain its objectives the associations often employ a paid secretary or manager, and hold periodic regional meetings and yearly state conventions.

The activities of the national association are an extension of the activities of the local and state associations. In addition, the national association is offered the opportunity to assume additional functions of a national character made possible by its broad resources. Thus the national can formulate principles of organization which the local and state associations can profit by using; it can deal directly with the other branches of the industry on problems of mutual concern; it can sponsor national legislation of benefit to the industry and the public; it can come to the rescue of local and state associations when they are engaged in local or regional struggles which have national significance; it can engage in research; it can formulate and recommend bookkeeping and cost finding systems. It is offered the opportunity to engage in a host of other helpful activities.

To describe the accomplishments of plumbing and heating contractor associations is to re-phrase their objectives and to state that all of these objectives have been achieved at least in part at one time or another during the history of these associations. Associations have elevated the standards of the plumbing and heating industry; they have assisted in the training of apprentices and journeymen so that the public may be well served; they have protected the health of the public through educational and legislative efforts.

As long as our industry continues to function as a vital part of American life and modern civilization, the job of plumbing and heating contractors' associations will never be completed. A reasonable and attainable objective is a constructive program sized in proportion to the logical demands imposed upon it.

Since association secretaries and managers are required to understand the activities and operations of contractor associations, DOMESTIC ENGINEERING *called upon J. E. Withers, manager of the Dayton, Ohio, association; Fred Fleishauer, executive secretary of the Buffalo association, and M. H. Buddha, recording secretary of the Long Beach, Calif., association, for their cooperation, which was freely extended. Edwin B. Clayton, president of the Colorado State Assn. of Master Plumbers and a national director, contributed largely to this discussion, as did many other association officers and members.*

What is a Manufacturers' Association

Problems of research, publicity, education standardization, etc., which are common to a whole group of manufacturers can be solved best by coordinated effort

MOST manufacturers' associations direct their activities along research, engineering, education and publicity lines. All of these functions have a direct bearing on the well-being of the public.

Research and engineering activities may be directed toward the development of better methods of manufacture or the development of basic improvements in the products made by the member firms. Any advance along this line is, obviously, of advantage to the consumer. Research and engineering activities may also be directed toward standardization or certification. Standardization reduces costs of manufacturing and distribution; certification may give the consumer added assurance and confidence in his buying.

Educational and publicity efforts aim to inform the public on the advantages of the types of products made by member companies. In this case, of course, the association is working for the self-interest of its members. But, it is also of benefit to the public if it informs how the products may best be used; or it is of benefit to the public if it publicizes products which offer real advantages to the consumer.

Within the industry, the manufacturers' association helps to make competition intelligent. The association's office may, for example, furnish sales statistics which help each of the members.

The individual business executive has a tendency to feel that he lacks information as to the factors outside his own plant which affect his business. Judge Gary is reported to have said that 50 per cent of the factors making for the success of his business (steel) were practically beyond his control. The association deals with many of these factors.

The individual executive needs to be reminded that he is part of a great industry. Perspective is essential to proper management. The manufacturers' association imparts the consciousness that plumbing and heating comprise a great and vital industry, and that the public demands the best in modern plumbing and heating products.

The improvement in the American standard of living is the result both of progress in solving the sanitation and heating problems of the American home and of progress in solving manufacturing problems in such a way that plumbing and heating products can be brought within the economic reach of the greatest majority of people. Group publicity, group laboratory work and group progress in manufacturing processes have all contributed to this result.

"The basic objective of a manufacturers' trade association is to provide the consumer of the industry's goods with the best possible product at the lowest possible cost. That this is enlightened self-interest rather than altruism is demonstrated by the records of the automotive, steel, textile, petroleum, rubber, and other large American manufacturing industries. The trade association provides a forum for the discussion of industry problems and serves as the vehicle for carrying out cooperative work in product research, marketing, foreign trade, and other fields. A manufacturers' trade association should overlook no opportunity to promote the sale of the goods or services produced by its members. That is the trade association's major justification for existence."

The manufacturers' association is expected to be ever ready to meet emergencies; to be prepared for the unexpected. Associations have often met such occurrences with credit. When in June, 1933 the National Recovery Act was passed, the first requirement of industry was group action in an entirely new field of procedure. Manufacturers' associations were able to be of real service to their members. This is but one of a number of similar instances.

The increasing number of laws passed, contemplated or threatened which deal with business require manu-

facturers' associations to watch official Washington carefully. Right now manufacturers' associations are expected to keep abreast of changing conditions brought by the war in Europe. There is always need for special information on business and market trends which the manufacturers' association are enabled to collect and disseminate to their respective groups.

The manufacturers' association affords the industry which it represents, the opportunity for formulation of group opinion and a means of expression for that group opinion. This opinion it may pass along to government, to other industries, or to other groups within the industry —such as wholesaler and contractor associations. Thus the members may vocalize their views through their manufacturers' association.

There are numerous manufacturers' associations within the plumbing and heating and air conditioning industry. They find their divisions naturally according to kinds of products made—radiators and boilers, soil pipe, plumbing fixtures, air conditioning products and so on. Groupings of similar products such as these form natural communities of interest among manufacturers which pave the way for manufacturers' associations to become organized and function. There is no one large, central manufacturers' association for the entire plumbing, heating and air conditioning industry.

Mrs. Jones listens attentively to a discussion of manufacturers' problems at an association meeting

Among officers of manufacturers' associations whose comments made this article possible are Olin C. Eckley, secretary-treasurer, the Plumbing & Drainage Specialty Manufacturers Assn.; William B. Henderson, executive vice president of the Air Conditioning Manufacturers Assn.; Edward H. Walker, adv. mgr., Anthracite Industries, Inc.; Allen W. Williams of Columbus, Ohio. Other members of various manufacturers' associations within the plumbing and heating and air conditioning industry also gave valuable assistance.

". . . for the mutual protection, improvement and harmonizing of business . . . practices in the industry . . ."

What is a Wholesalers' Association . .

AS the name implies, a wholesalers' association in the plumbing, heating and air conditioning industry is an organization of plumbing and heating wholesalers. Its scope may be either local, state or regional. While wholesalers have a national group composed of representatives from most of the sectional associations, there is no national wholesalers' association similiar in scope and membership, to the national associations of contractors.

The aims and purposes of wholesalers' associations generally are expressed in their respective by-laws or constitutions. For example, the constitution and by-laws of the Southern Wholesalers' Assn. states that it is organized "for the mutual protection, improvement and harmonizing of business customs, usages and practices in the industry; securing and promoting cooperation and united effort in all matters relating to the improvement of conditions in the said industry; improving working conditions, eliminating unfair and improper practices and, in general, establishing closer ties of business association so that the welfare of all engaged in the industry may be conserved and promoted."

The function of the wholesalers' branch of our industry is described as that of "wholesaling, plumbing, heating and air conditioning products, and distributing pipe, valves and fittings."

A wholesalers' association, accordingly, is made up of businessmen engaged in marketing plumbing and heating and associated products by their purchases from manufacturers and, in turn, by their sales to contractor-dealers.

As one wholesaler has declared, "A wholesalers' association is an organization of businessmen imbued with the determination to uplift their industry in the broad

"Trade associations generally have had a tremendous influence in the direction of elevating the business standards of this country to the levels they now occupy. Purposes aid mutual understanding and better conditions among all branches of our industry"

sense, not entirely selfishly, by promoting the best interests, not only of wholesalers, but of manufacturers and contractors as well; businessmen who realize that their well-being depends upon the well-being of the other branches of the industry.

"The wholesalers' association seeks to eliminate, as far as humanly possible, unfair trade practices and unethical methods; to find, through research and cooperation, the most economical distribution methods consistent with other factors involved; to foster the 'American way' of business honesty, integrity and fair dealing in all relationships with manufacturers and contractors; all to the end that the industry may render greater service to the public and may be more ethical and more enjoyable for those engaged in it."

It has been demonstrated on occasions too numerous to mention here that trade associations generally have had a tremendous influence in elevating the business standards of this country to the levels they now occupy. Specifically, wholesalers' associations, through the cooperation of their members, have brought about better understanding and better conditions not only between competitors, but also between wholesalers and manufacturers and between wholesalers and their customers, contractor-dealers.

They have been instrumental in promoting health through publicity and in sponsoring legislation that guards the health of the public. They have opposed unfair practices in both selling and buying. They have encouraged economical distribution methods as a result of studying actual costs in the various departments of different wholesalers' businesses.

They have encouraged manufacturers to announce and maintain constructive sales policies. They have studied employees relations carefully in an effort to improve working conditions and to better employer-employee relationships. They have accomplished much in the way of improved competitive relations, not only between executives and owners, but throughout entire organizations.

Individual wholesalers are given the opportunity to tie in with national movements in the plumbing and heating and air conditioning industry, through their associations. Thus, as a result of cooperation, several supply associations have and are now endeavoring to inform the public of the low comparative prices and high comparative values of plumbing, heating and air conditioning products.

In promoting such campaigns, associations of wholesalers present the facts to their members through bulletins and contacts, with the recommendation that their members present these facts to contractor-dealers and others whom they encounter. Wholesalers are also enabled to present these viewpoints to the general public in their advertising.

Wholesalers are also aiding in the campaign to inform the public regarding the health hazards of uncontrolled traffic in insanitary plumbing fixtures and materials, and the dangers of uncontrolled traffic in unsafe heating equipment. They stress also the poor economy in the purchase and installation, by the public, of such fixtures and equipment.

Wholesalers' associations are expected to give concrete aid to their members in recommending constructive and conservative credit policies and in the formation of other important business policies. They are expected to serve as a clearing-house of information for all of their members. In addition to these functions, wholesalers' associations act to convey the viewpoints of their members to the constituents of the other two branches of the industry.

W. E. McCollum, secretary, Central Supply Assn., and E. T. Nance, vice president, Southern Wholesalers Assn., were especially helpful in the preparation of this feature. Members of several other wholesalers' associations also contributed their views which have been incorporated herein.

What is the Bureau.....

Through radio and printed publicity, the Plumbing and Heating Industries Bureau influences Mrs. Jones to want modern plumbing and heating conveniences in her home

THE Plumbing and Heating Industries Bureau is the publicity agency for the plumbing and radiator heating industries. All of the time and attention of the Bureau are devoted to the exclusive task of getting the largest possible amount of favorable attention for the plumbing and heating industries.

This work has been notably successful. Records of the total yearly publicity linage show that if it were necessary for the industries to buy at advertising rates the space occupied by Bureau publicity, the cost per year would exceed $500,000.

Publicity is information with news value. It is designed to advance the interests of a cause, and in the case of the Bureau's publicity, the cause is the products of the plumbing and heating industries.

Through publicity these products are explained to the readers of newspapers and magazines not once or twice, but constantly, through news releases that are sent out regularly. The constant repetition of a worth-while story stamps it on the mind of Mrs. Jones. Without realizing it, she is being educated in the merits and advantages of plumbing and heating products, and influenced favorably toward them in her buying.

Publicity also prepares the way for the salesman. The products he is selling are known and respected, sales resistance is lowered, and the total selling cost of the industry is cut.

The Bureau is set up as an all-industry organization, and is supported by 42 national and sectional associations of both industries, and individual contributors. It is governed by a board of 20 directors, elected by representatives of the association members at a meeting held annually in October. This board elects the officers, the president, vice president, treasurer and secretary. The secretary has general charge of the Bureau, subject to the supervision of the board of directors.

The publicity sent out falls into three main classifications: (1) general consumer publicity; (2) public relations assistance to members; (3) cooperation with related governmental and civic groups.

Publicity reaches the general consumer through the obvious media of daily and weekly newspapers; through magazines of general home interest and trade types; and over the radio, by speeches and educational programs.

The Bureau aids the members in their own public relations work by sending out publicity stories on conventions; by cooperating in advertising and publicity campaigns of the various associations; and by distributing reprints of articles to wholesalers, contractors and manufacturers for use in sales promotion activities.

Governmental and civic groups that function for the benefit of the general public are eager to get helpful information in regard to plumbing and heating. Civic groups welcome prepared addresses on these subjects and publicity stories on home shows and expositions; while governmental groups, both federal and state, use the clip sheets and articles.

Americans are a nation of newspaper readers. The newspaper, therefore, is most practical and profitable

Mrs. Jones has often read articles and items released to newspapers by the Plumbing and Heating Industries Bureau. Here she looks in on an annual meeting of the Bureau

medium for plumbing and heating publicity because it reaches the greatest number of people over a wide range of income groups. Its appeal is largely to the home-owner—the family interested in the improvement of its home or the building or purchase of a new home.

The Bureau places publicity in the form of news stories and feature stories on building pages and feature sections of newspapers which interpret plumbing and heating products to consumers. Weekly newspapers are reached through direct mailing, through press associations or indirectly through the Federal Housing Administration.

Publicity in two types of magazines, home interest and special purchaser, keep millions of readers informed on the advantages of modern plumbing and radiator heating.

Radio publicity for plumbing, heating and air conditioning is carried on through the joint cooperation of the radio stations, the Federal Housing Administration, and the Bureau. Most of the talks are prepared by the Bureau and the radio stations make no charge for the time.

Radio publicity for state conventions is in the form of radio addresses or interviews by officers or directors of the National Assn. of Master Plumbers or officers of state associations.

In addition, the Bureau has arranged radio talks for housewives, architects, contractors and others outside the industry who, on special programs, presented their point of view on plumbing and heating improvements. Members of Associations are frequently called upon to make radio speeches.

Bureau articles and illustrations are used to a considerable extent in handbooks and manuals, most of which are published by magazines.

Certain non-competitive industries have interests that closely tie in with those of the plumbing and heating industries. The Bureau has developed cooperative relationships with these industries that have led to favorable publicity exchange. Through this medium, publicity reaches a different type of reader. Whereas most of the Bureau's articles are published on building and real estate pages of newspapers, the bulk of the cleanliness publicity is published on the women's pages.

Cooperation with civic and governmental groups is an important part of the program. Home shows in many cities receive advance and current newspaper publicity. The Bureau is constantly called upon to furnish addresses for members of civic groups, such as the Rotarians, Lions, etc. These addresses feature some phase or product of the plumbing and heating industries, and since the members of these groups are invariably civic leaders, publicity in these cases, reaches the higher income brackets.

The assistance which the Bureau gives to the Electric Water Systems Council is an interesting example of the correlation of the interests of manufacturers, wholesalers, contractors, utilities, and governmental groups.

The Electric Water Systems Council consists of representatives of the Edison Electric Institute and of the National Assn. of Electric Water Systems Manufacturers. These two groups, working jointly, have developed plans, used successfully for the last five years, and continued and improved for the future, to greatly stimulate the purchase, sale and installation of electric water systems on rural lines.

By means of publicity in farm magazines, newspapers, and other publications, the Bureau keeps the manifold advantages of running water on the farm before prospective purchasers. Articles describing the promotional activities of the Council are prepared for publications read by dealers.

As an association of associations the Bureau has—

(Continued on Page 147)

Values Are Up— Prices Down

Item by item comparison discloses standards of health, comfort and convenience not available to earlier generations. Reductions in price have kept pace with amazing advancements in quality, stamina and efficient operation in our industry's products

IF the products of our industry should cost the consuming public twice their present prices, they still would be outstanding buys when compared with products of 50 years ago. In many instances, they would be exceptional when compared with products designed and introduced within the last 5, 10 and 15 years.

Standards of sanitation and measures of comfort and convenience, which even today in many parts of the world are only enjoyed by the wealthiest groups, are available to the entire American public. Advances in designs, in manufacturing processes, in the development of materials and in the application of finishes have produced plumbing, heating and air conditioning products which simply did not exist for those of earlier generations. The full import of progress is apparent when a review discloses what is available today as compared with the past. No matter how much a housewife may have wanted to avoid stains on the enamelware of her kitchen sink a few years ago, there was nothing she could do about it because acid resisting finishes were not commonly available. Those who wished to escape from summer heat were forced to travel to a cooler climate instead of turning to air conditioning as is now possible. If there was dissatisfaction with the finish on metal trim, there was nothing to be done except wait for the relatively recent development of tarnish-proof, easily maintained and economically applied finishes.

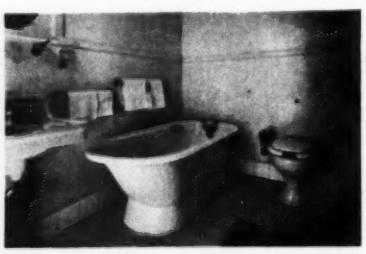
For practically every technological advance, there has been a corresponding broadening of the application for our industry's products.

The amazing record of actual improvements in plumbing, heating and air conditioning products is matched by equally astonishing reductions in cost to consumers. Not only are the products of our industry made better, they actually cost less than their forerunners.

A review of today's achievements should not be construed as a disparagement of past performances. The best of past years was a result of conscientious and sincere effort and represented a definite level of accomplishment in the march toward increasingly high standards, just as continued advancements by our industry will, in the future, eclipse today's achievements. The following specific instances of product improvements and price comparisons emphasize that for the average Mrs. Jones, in America, plumbing, heating and air conditioning **values are up and prices are down.**

Early Bathroom

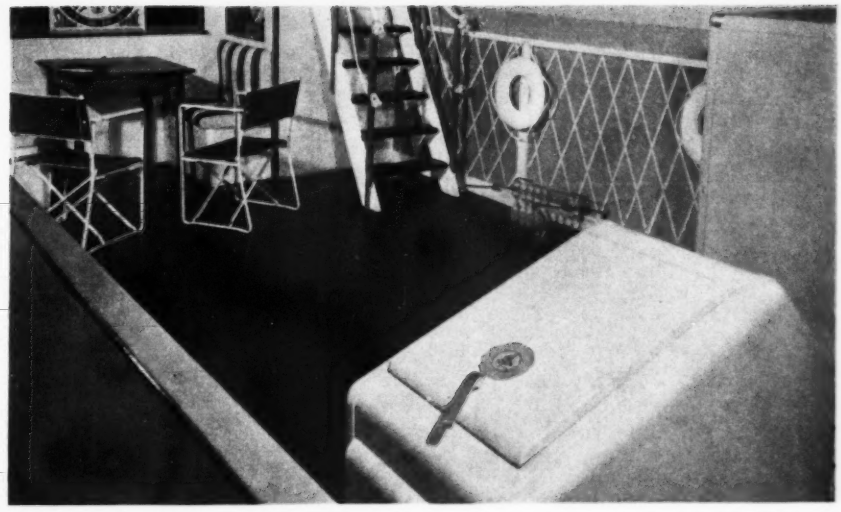
The pictures tell the stories. The bathtubs, perhaps more than any of the other fixtures, reflect the advances made in the design and appearance of the products of our industry. The old-style tub, perched up on a high base, represents an era in design antedating even the other fixtures with which it is grouped. Today, the color scheme of the bathroom, the correct grouping of lines in the design of the fixtures, all have been considered in producing an ensemble which contrasts greatly with these early efforts and which, however adequate at the time, in no wise satisfy the demands of today's consumer.

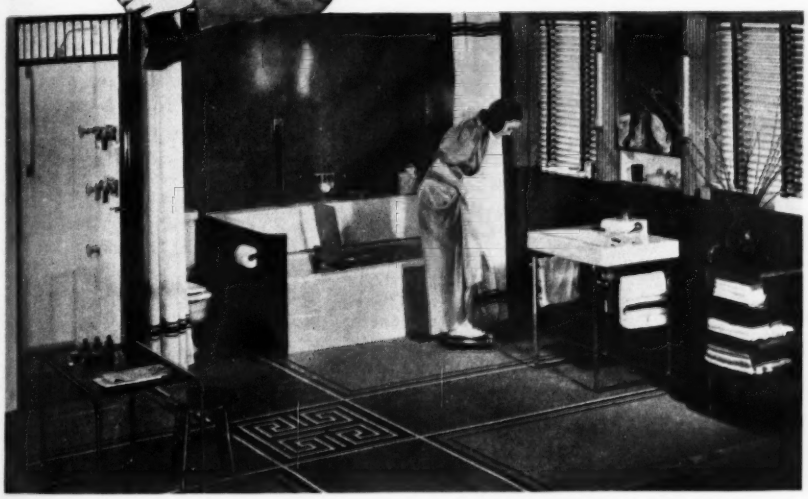


Early bathroom

1939 Bathroom

The use of strong but pure colors together with a profusion of light is one of the outstanding advances made in bathroom design. Economy in piping, brought about by careful grouping of fixtures, is one of the unseen contributions of modern plumbing art. The roomy bathing area, flat bottom tub and separate shower stall, a closet with sanitary close-coupled connection and a lavatory with enclosed supply fixtures, are still further evidence of the careful planning and attention to detail that has marked our industry's progress. Of course, the cost of the two bathrooms is not comparable. One has only the meagre essentials while the other is the modern bathroom on a grand scale, but in two installations with fixtures of a comparable number and quality, there is no doubt that today's values will far outweigh those of yesterday.

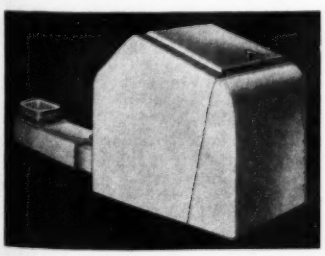


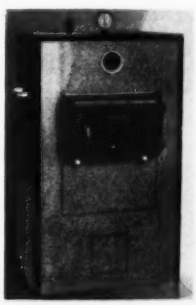


The streamlined bathroom of today, and the beautiful basement recreation rooms made possible through development of automatic heat and air conditioning are evidence of the fullfillment of a public trust exceeded by no other branch of American industry, not excluding even the dramatic advances registered by the automobile industry

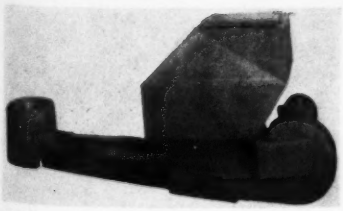
1939 Round Boiler

The new round boiler shows little relationship to its predecessor. The two-tone jacket with its chromium trimmings, water heating coil, automatic draft regulator, shielded flame observation door are but a few of the advances made during the last 50 years. Compact construction and superior materials have also played a part in producing a unit infinitely superior in appearance and capacity. The price of this company's boiler has been reduced 66.1 per cent since 1885.

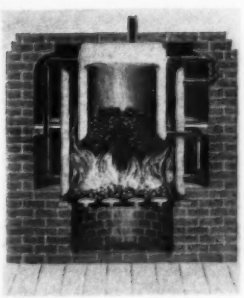




Directly at the left is the 1939 round boiler and beneath the caption is the 1885 round boiler



At the upper left is the 1939 model stoker; beneath it is the 1929 unit



1885 Round Boiler

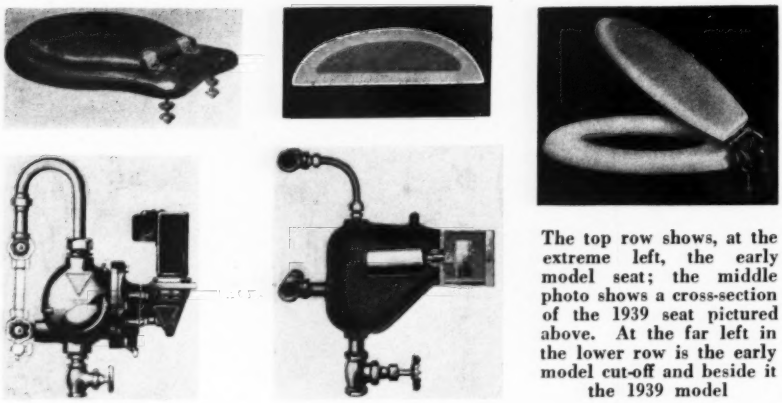
The illustration of the 1885 boiler is more than equal to the proverbial ten thousand words. True, it was an outstanding product in its day; it was well built; it equalled its contemporaries in appearance; and it performed its function well, which, perhaps, is all one formerly could ask of any product. Even today many of these boilers are providing heat for the mansions erected during that period.

1929 Stoker

Ten years ago this stoker was considered by many to be tops in small units. The hopper, of light gauge ordinary steel welded to the coal tube, was not particularly attractive, and relatively difficult to fill. A ratchet type power unit was directly connected to the motor and protected by a shear pin extending through the shaft and coupling. A flexible tube to by-pass the air from the fan to the coal tube was then thought to help prevent "smoke back" and was so used. An enduring feature of these stokers was the automatic air control.

1939 Stoker

Streamlined and precision built of proven materials this modern coal stoker combines performance, long life and good appearance. In every way this is a stoker far superior to the 1929 model, yet it costs the consumer approximately $100.00 less than did the old model. The actual utility value has been greatly increased; operation is quiet and thoroughly dependable.



The top row shows, at the extreme left, the early model seat; the middle photo shows a cross-section of the 1939 seat pictured above. At the far left in the lower row is the early model cut-off and beside it the 1939 model

1929 Softener

In 1929, one model water softener for home use was advertised as requiring no engineer's license to operate it. Refinements on this model included an external salt pot and a soap testing outfit welded to the side of the tank. This was an entirely new idea and was for use in determining the hardness of the water. The capacity of the unit was described as high—620 gal. of soft water from water of 20 grains hardness. The price was $227.00 f.o.b. the factory.

1939 Softener

The 1939 water softener is so simple a child can operate it. It is an automatic, streamlined affair which provides all the luxuries of soft water merely by pushing a lever now and then to automatically put the softener into its regeneration cycle. These softeners are made of steel, electrically welded and heavily galvanized; the whole unit is finished in beautiful white enamel. The modern high capacity softening agent is rated to give more soft water than was possible in the older models. It has a capacity of 1,000 gal. of soft water from water having 20 grains of hardness. The list price is $180.00 f.o.b. the factory.

Early Low Water Cut-Off

The manufacturer of this cut-off calls attention to the design of this earlier model unit which was intended to be the least expensive model on the market, consistent with good operation. The fittings for a gauge glass connection, for instance, were of heavy expensive brass pipe due to the importance of this part. The switch, as well as the control, was proclaimed as being of a most simplified and compact design. All in all, it was a fine control, for earlier periods but it didn't fit in with modern demands. Improved models were, therefore, designed. These were not only superior in operation but less expensive. The cut-off carried a list price of $32.20.

1939 Low Water Cut-Off

One outstanding feature of this improved model low water cut-off is the new connector for easy installation into the gauge glass tappings. Unlike earlier models, it is provided with an extra large size sediment chamber. It is distinctive in appearance and is made with high quality materials. Snap-action cut-in and cut-out service are features of its design. The switch construction is such that the cut-off can be supplied for service as a low water cut-off only, for reverse action as a pump starter, or with two independent switches for combined cut-off and alarm connection. This improved cut-off carries a list price of $23.00.

1900 Seat

This seat was described as a deluxe model in the gay ninety era and was available in golden oak, dark oak or imitation cherry, with either a varnished or piano finish. It was equipped with nickel plated hinges and had concealed bolt slots with bolts and washers to attach the seat to the bowl. These early models were well made, and sold on a beauty appeal because the finishes matched the trim of the bathrooms then in vogue. Sanitation apparently was not a consideration. The finishes were not durable and the cores absorbed moisture and made a place for disease germs to breed. The concealed slots also gathered dirt. The consumer price of this early model was $6.00.

1939 Seat

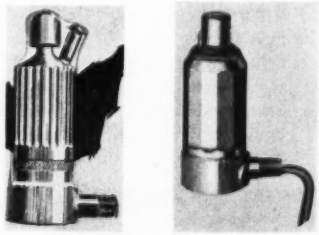
The modern seat of today, finished in white or beautiful pastel colors lends a note of beauty to the bathroom. Chief among its advantages is the sanitation appeal. The old absorbent core has been replaced by a sanitary molded plastic core made in one piece—no seams or joints of any kind. This one-piece water-proof core is, in turn, covered with a seamless sheathing. No moisture can enter—no germs can breed. The price of this latest bathroom refinement is $5.15 to the consumer.

Early Vent Valve

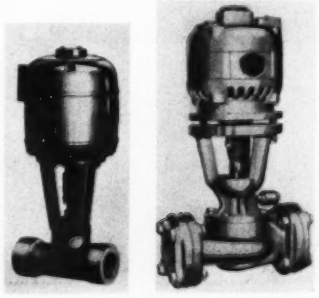
This valve was an outstanding product in its day, but has been rendered obsolete by advances made since its introduction. Some of its characteristics which differed from those of the manufacturer's present model valve were: It drained condensation with the aid of a hand-operated feature and had a fixed venting speed, the seating pin was of brass with the valve shell soldered to the base. The connection nipple was soldered to the base and the valve was finished with a dull nickel plating. Little attention was paid to packaging in those days, and as a result, the valve merely was packed with a tissue paper wrapping which often permitted scratching. The valve had a list price of $2.25.

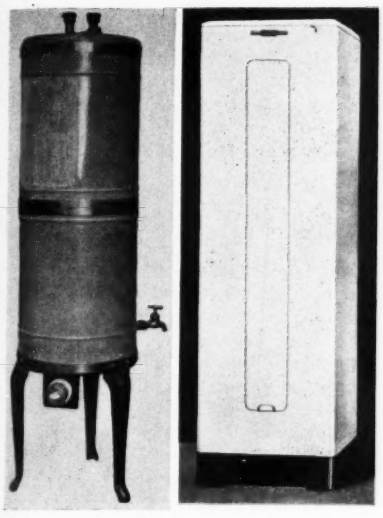
1939 Vent Valve

The fact that this valve has an adjustable venting orifice, to permit balancing, at once marks it as an improved product. In place of the old hand-operated draining feature, this new model valve drains the water automatically through the siphon tube. The seating pin is of nickel silver, the valve shell is soldered and threaded to the base, and the connection nipple is riveted and soldered to the base. Its bright chromium finish is protected from scratches by modern individual pack-



The early model vent valve and the 1939 model are illustrated above
At the left is an early hot water circulator; beside it is the 1939 unit





Early Water Heater 1939 Water Heater

ages. Another feature, not quite so apparent on casual inspection, is the increase in the strength of various parts due to improved annealing processes. The list price of this valve is $1.45.

1928 Circulator

First built in the fall of 1928 was this early model hot water circulator. It was a 1½ in., 1/10 hp. model with screwed connections and a capacity of 25 gal. per minute. One thousand square feet of installed radiation was the rating originally accorded this unit. It weighed 48 lbs. when packed for shipping. The consumer price on this pioneer in the forced circulation heating field was $95.00.

1939 Circulator

Today our industry has at its disposal a highly efficient, centrifugal type water circulating pump, especially designed for hot water heating systems, with an actual delivery of 50 gal. per minute and a weight of 66 lbs. This unit is also 1½ in. in size and is furnished with a 1½ in. union connection and the added power provided by a ⅛ hp. motor. Its rated capacity is 1,500 sq. ft. of installed radiation. This circulator today, so greatly improved, sells at a consumer price of $39.50.

1927 Water Heater

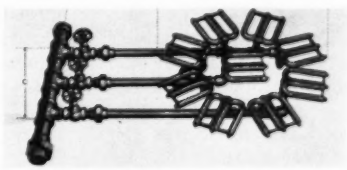
Just twelve short years ago this was the latest thing in electric water heaters. Perched up high on stilt-like legs, with a manual control switch and a kitchen faucet drain, this model looks peculiar today. But in spite of its crude appearance, the 1927 electric water heater did a good job and was quite an improvement over previous efforts. The price for this forerunner of the modern electric water heater was $170.00—for 30 gal. capacity.

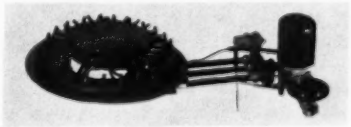
1939 Water Heater

This streamlined, rectangular model was pioneered by one of the leading electric water heater manufacturers. Realizing that the American public wanted style and appearance in its kitchen as well as its living and dining rooms, this company introduced a 1934 model heater that would fit into the general design of the modern kitchen. Smooth sleek lines, automatic temperature controls, highly efficient immersion units, and a blanket of rock wool insulation—all these features were developed that Mr. and Mrs. Jones might have hot water at the turn of a faucet, quickly, efficiently and economically. Today, this vastly improved water heater costs the consumer less than half the price of the 1927 model.

Early Gas Burner

The original basic design of this older model gas burner, as shown in the illustration, called for the use of a burner which would get all the heat possible inside the boiler or furnace. There was no attempt to give any proper or even application of the heat to the side walls, nor was there automatic control equipment of any kind used in connection with the burner. The burner produced about 50 per cent efficiency—but it meant a long stride forward in the development of gas heating. This burner cost the consumer about $92.00 with an additional cost of about $35.00 for installation.





Above and below this caption are shown, respectively, an early conversion gas burner and a 1939 conversion burner. The pictures at the right illustrate a 1939 air conditioning unit at the top, and an earlier air conditioning equipment room, bottom

1939 Gas Burner

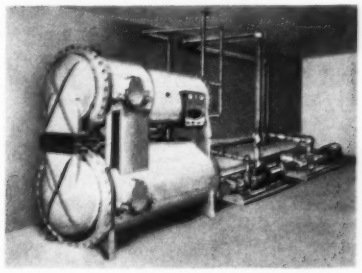
The latest type conversion gas burner is equipped with upper and lower baffles, gas pressure regulator, motor gas valve controlled by an electric clock thermostat with automatic air intake limit control and safety pilot control. All these advanced features assure the customer of an efficiency of better than 80 per cent, according to the manufacturer. This burner equipment, due to the tremendous savings that have been effected in quantity production and time saving devices in manufacture carries a list price of $116.00.

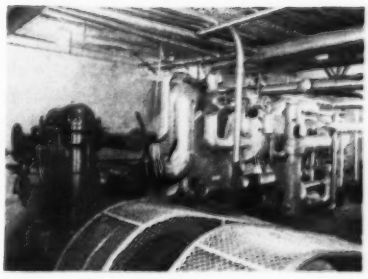
Early Air Conditioning

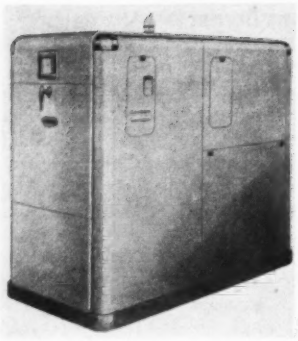
While the search for old-time air conditioning equipment was hardly the job for an antiquarian because of the newness of the air conditioning industry, certain interesting developments are disclosed. Typical of the scenes in an air conditioning equipment room of the past ten years is the one shown here. The many interrelated parts presented maintenance problems and required individual attention. It spread out over a large floor area—a maze of equipment.

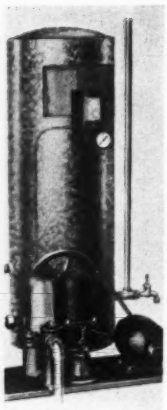
1939 Air Conditioning

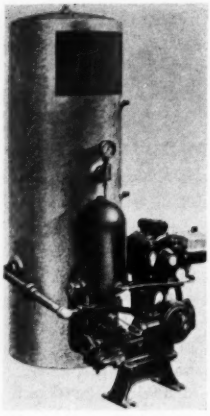
Incorporating all of the mechanical essentials contained in the above, for the provision of chilled water for air conditioning, this self-contained, hermetically sealed unit is one company's latest development in vacuum refrigerating machines. It requires a minimum of water and electrical connections and may be installed readily and easily. Space and weight considerations have been reduced to a minimum in this unit.

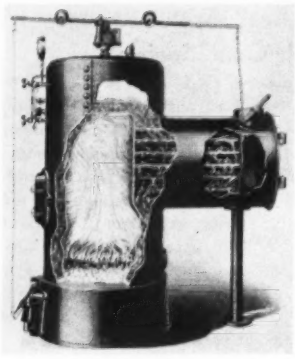












At the left above is the latest model steel boiler; directly beneath it is a 1929 steel boiler by the same manufacturer. The two photos above show, left to right, the early model water system and the 1939 model

1929 Steel Boiler

Many contractors in 1929 offered this steel boiler to their customers. They stressed the features of the unit's construction, its quicker pick-up, longer life, greater economy when combined with an oil burner as a boiler-burner unit. The boiler had to be covered with asbestos, the controls projecting conspicuously from the side. In a de luxe installation an outside domestic hot water heater was attached. The unit had particular appeal to the contractor in that it reduced the time required for him to make an installation. The price to the consumer for boiler alone was $280.

1939 Steel Boiler

Designed to blend with the most finished basement, a carefully tailored jacket, finished in a crinkled green enamel, conceals a modern highly efficient copper-bearing steel tubular boiler. With slight changes the unit is adaptable to firing with oil burner, gas burner, or stoker. Electrically welded steel construction provides the ability to withstand the "off" and "on" operation of automatic firing. A copper hot water coil is built into the boiler while the jacket design is such that the firing device and controls may be completely concealed. Special insulation and careful attention to conservation of basement space feature the boiler's design. The price of this greatly improved boiler, to the consumer, is $300.00.

1930 Water System

It was only nine short years ago that this water system was placed on the market. Delivering 210 gal. per hour with a ¼ hp. motor it was considered the ultimate in home water systems in 1930. A single acting pump was mounted on a pressed steel base. The only way to take up belt slack was to move the motor on the base. A great disadvantage was the difficulty with which the pump was serviced; the discharge piping had to be disconnected before the valves could be inspected. This unit cost the consumer $109.00.

1939 Water System

With the passage of the nine years, this manufacturer has increased the capacity of its water system by 40 gal. per hour and has decreased the motor horsepower; 250 gal. are now being delivered by a ⅓ hp. motor. This double acting, easy-to-service pump is self-contained and has an automatic belt take-up and entirely automatic lubrication. The motor is of the capacitor type, non-radio interfering. Other changes and improvements are its 42 gal. tank with automatic air volume control and other automatic control features. And yet the price was reduced to $75.00.

1926 Pipe Machine

This machine cut, threaded and reamed ¼ to 2 in. pipe—cutting, threading and reaming the latter size in 80 seconds. It was furnshed only with non-opening die heads and required backing the dies off the completed thread. The cut-off consisted of a single cutter blade, fed by means of a hand feed wheel; there were no chuck wrench ejector fingers and if the wrench was left in the chuck and the motor turned on, it would break either the wrench or the machine. There was no oil pump, the oil being fed to the threading dies by means of an oil pot and gravity feed. The switch was a snap switch with no guard to protect it from damage. The price to the contractor was $425.00.

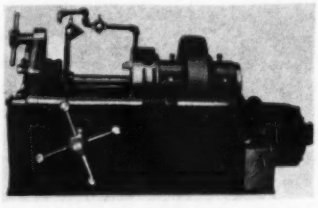
1939 Pipe Machine

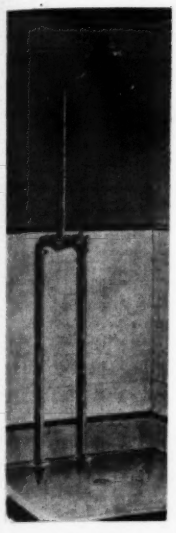
The latest model portable power pipe machine will cut, thread and ream ⅛ to 2 in. pipe. It will cut off, thread and ream 2 in. pipe in 40 seconds, or approximately one-half the time required by the older machine. It can be furnished either with non-opening die heads or quick-opening heads. The cut-off consists of four cutter knives, scroll fed, all cutting simultaneously. The chuck wrench is equipped with chuck wrench ejector fingers that will remove the wrench from the chuck, if left in accidentally, without damage to either. A centrifugal type oil pump that will pass dirt and chips without clogging, assures a constant and steady flow of oil at all times. The price of this improved model to the contractor ranges from $275.00 to $350.00, depending on the type of die head.

1901 Shower

This rather ornate model shower was being produced by one manufacturer in 1901. One of the greatest dangers which arose from this type of shower was the ever-present threat to the bather that he might come in contact with the hot water supply line. The tubular shower head was in a horizontal posi-

Above, 1926 Pipe Machine
Below, 1939 Pipe Machine





Early Shower

1939 Shower

tion thus forcing the water directly onto the head of the bather. Construction consisted of two globe valves with non-renewable seats; the hub was renewable, the whole unit was nickel-plated.

1939 Shower

All the supply pipes of this latest development are built into the wall, thus making the shower attractive and eliminating the possibility of contact with the piping. Another advancement is the mixing device which measures hot and cold water accurately by manual operation of the lever handle from right to left. The shower head is self-cleaning and gives the bather his choice of spray, which can be regulated from normal to needle to flood by operation of the lever handle. All valve parts in the mixing unit subject to wear are renewable.

1924 Water Feeder

Fifteen crowded years have wrought a remarkable change in the design and value of boiler water feeders. With honest conviction, the manufacturer of the 1924 model illustrated here, described it as "the best boiler water feeder of its time" but this did not mean that it was free from faults that then seemed inescapable. There were too many parts exposed to the steam and hot water in the float chamber. Heat at the feed valve caused lime and scale formation and that often meant trouble, particularly in the hard water districts. Judged by modern standards, the strainer was small and inadequate, the disc valves were far behind present-day construction—in fact, every part of this device that was highly acceptable in 1924, is almost incredibly below today's standards. Its price to the consumer was $50.00 plus labor for installation.

1939 Water Feeder

This same manufacturer's boiler water feeder of today is an outstanding example of a product constantly perfected and constantly reduced in price. In this 1939 model the feed valve and all working parts are isolated from the heat of the float chamber, so that the water surrounding the valve never reaches the temperature at which scale is formed. Outstanding features like the large strainer, removable clean-out plate, straight-thrust valve action and provision for a low water cut-off switch have given it value far beyond that of the 1924 model—and yet the price to consumer has been reduced to $36.00.

1928 Sump Pump

This early model sump pump had a special mercury type switch incorporated in its design, this switch was described as being of the most rugged construction—reliable and durable. The pump itself was all bronze throughout, except the motor, which was connected to the fully enclosed impeller shaft by flexible couplings. The unit was powered by a 1/15 hp. motor and had a 900 gal. per hour capacity at a 5 ft. head. The price of the unit was $65.00.

1939 Sump Pump

A mercury switch is also used in this newest model sump pump because of its adaptability to float operation. The pump is of the top-suction submerged type equipped with an ample strainer; it has a double shroud, high efficiency type impeller designed to eliminate vertical thrust. In eleven years the price of this unit has dropped to $39.50; it now has a 1500 gal. per hour capacity with a 5 ft. discharge head.

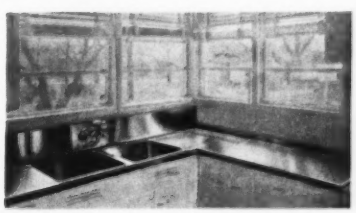
1920 Sink

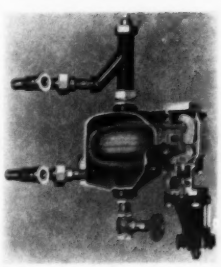
In 1920, when Mrs. Jones first laid eyes on her new "sanitary" kitchen sink, she gave a sight of relief and declared her independence from kitchen drudgery forever. Here at last was an answer to one of the housewife's needs—a kitchen sink that was stain and rust-proof—a sink that would relieve her of the constant scrubbing, polishing, scouring and rubbing. But little did Mrs. Jones of 1920 realize the rapid strides this infant would make in 20 years. The elbows and corners of the sink were sharp and square; joints and seams were exposed and soldered; the overlapping soldered flanges on the sink bowls caught dirt and grease and were perfect breeding places for bacteria.

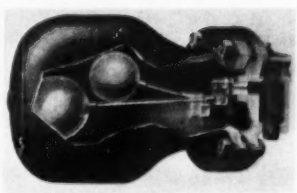
1939 Sink

In the twenty years of sink development since 1920, science and industry have wrought miracles in perfecting the early attempts at stainless steel sink construction. They have produced a sink that is not only stainless and rust-

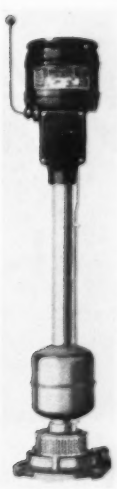
(Continued on Page 149)







The top row of photos illustrate, left to right, the early and 1939 model sinks; at the right are shown, first the 1928 sump pump and second the 1939 sump pump. Immediately at the left is the 1939 water feeder and beneath it the 1924 water feeder



Mrs. Jones is given an illustration of the manner in which the contractor can serve as adviser and consultant to the customer by suggesting fixture arrangements and sizes to suit the space available

Why Established Channels

IN the accompanying illustration, Mrs. Jones looks in on an interview which is typical of those between plumbing and heating contractors and their customers. She notices that here is a tailor made job in the process of development, a job which takes into account all of the home owner's desires and needs. Mrs. Jones is given an illustration of the manner in which the contractor can serve as adviser and consultant to the customer by suggesting fixture arrangements and sizes to suit the space available. If Mrs. Jones eavesdrops, she discovers that the contractor will not merely unload the fixtures at the backdoor, but will go to great lengths to plan and supervise the installation. The customer's plumbing and heating worries and responsibilities are reduced to an absolute minimum by this personal relationship with the contractor.

The benefits, to the consumer, of the established methods of distribution are perhaps best portrayed in this

The end result of the manufacturer, wholesaler, contractor channel is more satisfaction, less worry for Mrs. Jones. She buys a finished installation—not only fixtures and equipment—and is concerned only with the results it will give

type of an illustration, for it shows the end result of the manufacturer, wholesaler, contractor channel.

Such a picture would make a decided contrast with pictures symbolizing the alternate methods of distribution. In one case, the customer selects fixtures, pipes and fittings from a catalog and orders these materials by mail. In the second case, he buys them over the counter as so many potatoes or shirts. In the third case he gets them from a junk yard or second-hand dealer. In all instances, he buys merely the parts that go to make a plumbing or heating installation—not the installation itself.

A consumer who has bought plumbing and heating products through one of these three types of outlets is likely to remark that his troubles were not ended with the purchase, but merely begun. He may have run into endless difficulties in trying to plan and make the installation himself. Or he may have engaged a handyman to do the work for him. Either choice could have resulted in damage to floors, walls and woodwork; in trouble with the plumbing inspector if the installation was inspected and found not to conform to the code, in continuing repair bills.

After such an experience the consumer conceivably might pause to reflect that when he wants an automobile he does not purchase the parts and try to assemble them himself or hire an inexpert mechanic to do it. He buys the automobile as a complete and working mechanism. Why, then, should he attempt to install or supervise the installation of a plumbing or heating system—which also is a complicated mechanism? This is an age of specialization, an age in which only specialists are fully competent to deal with the complex devices which American genius has brought forth. This is as true in plumbing and heating and air conditioning as it is in other technical fields.

This point becomes irrefutable when we consider the installation of plumbing, heating and air conditioning systems in a large building. The building is planned as a complete unit, with doors and windows here, radiators and plumbing fixtures there. The exact arrangement of the piping to be concealed within the walls is diagrammed. The total number and types of fixtures to be needed, the amount of radiation, and a thousand other essential details are all considered, allowed for, and put down on paper. If the building is constructed according to this blueprint it will function satisfactorily and fulfill its determined purpose. There will be a sufficient number of sanitation facilities for the occupants.

At a specified date after the contracts have been awarded, the builders progress to the point where the first water supply and waste pipes must be installed. On this exact date all the pipes, joints, fittings arrive at the site. No one is surprised at the fact that all of these materials are already sized for this particular job. The plumbing and heating contractor and his journeyman arrive and immediately get to work placing the materials according to the blueprint. When they are finished, they go away and there is only the completed piping to indicate that they have been there. The work proceeds.

Had there been a delay in the arrival of the materials, had some of the materials been missing, had the contractor or engineer not understood his task, had the journeymen not been competent, there would have been an expensive delay—a breakdown in the entire project.

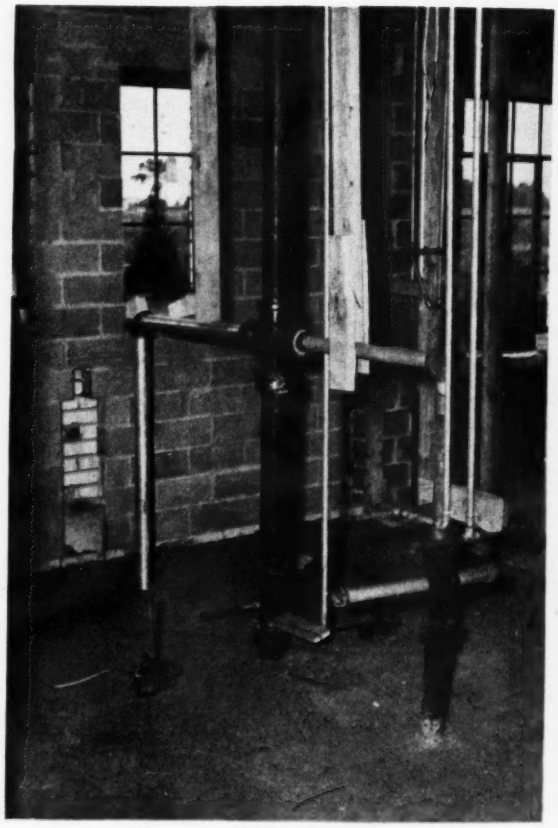
After another period, the building has progressed to the point where the fixtures may be set. Again the contractor and his journeymen arrive, this time to install the fixtures which already have been delivered. The fixtures are set, and the contractor and journeymen make way for the next building operations of others. Another step in the erection of the building has been achieved without unwarranted delay or difficulty.

When the structure is finally finished, the building manager makes a tour of inspection. He tries a faucet—water flows; he turns on a radiator—there is heat. The plumbing and heating works. And he feels an assurance that there are no cross-connection possibilities in the plumbing system which might endanger the health of the building occupants; no unprotected factors in the heating system which might cause explosions with consequent loss of life and property.

Multiply this by hundreds and thousands of installations going on simultaneously throughout the United States and the result is an indication of the task assumed and discharged by the established channels of distribution.

The foregoing represents the manner in which the plumbing and heating industry is required to function in large projects. . . Is it not obvious that a large building is merely a multiplication of the components of a small one; that the difference between a little plumbing or heating installation and a big one is only a difference in degree, not in kind? The same careful planning, the same precision, the same attention to detail which prove so necessary in installing plumbing and heating systems in large office buildings prove equally necessary in the installing of plumbing and heating in a home.

(Continued on Page 145)



This is a part of plumbing equipment that Mrs. Jones seldom sees although it is fully as essential to her comfort and convenience as the lavatories, tubs and other fixtures which "front" for the whole system.

What is a Plumbing Code . .

OF all misconceptions about our industry which have been permitted to exist in the minds of some of the public, the one regarding plumbing codes probably is the most pernicious and tragic. Men who have been associated with the plumbing industry many years know how to correct this misunderstanding. Members of our industry who have the facts and the experience know that an up-to-date plumbing code is one of the strongest safeguards to health with which a community can be blessed. They know that it is the best kind of preventive medicine.

The plumbing code locks the barn door *before* the horse has been stolen, not afterward.

The plumbing code is designed to rule out the unscrupulous or inefficient individual who would exploit an unknowing and unsuspecting public into paying for inferior workmanship and shoddy, inadequate equipment that would present a menace to health. And, since health is one of the chief assets of any community and, in turn, of the nation, it might well be said that plumbing codes form one of the main elements of national defense against disease.

When travel was mainly by buggy there was need for few and simple traffic regulations. With the advent of the automobile, however, the regulation of traffic became

(Continued on Page 142)

K & M INSULATION HELPS STEP UP EFFICIENCY INSIDE THIS MODERN PLANT

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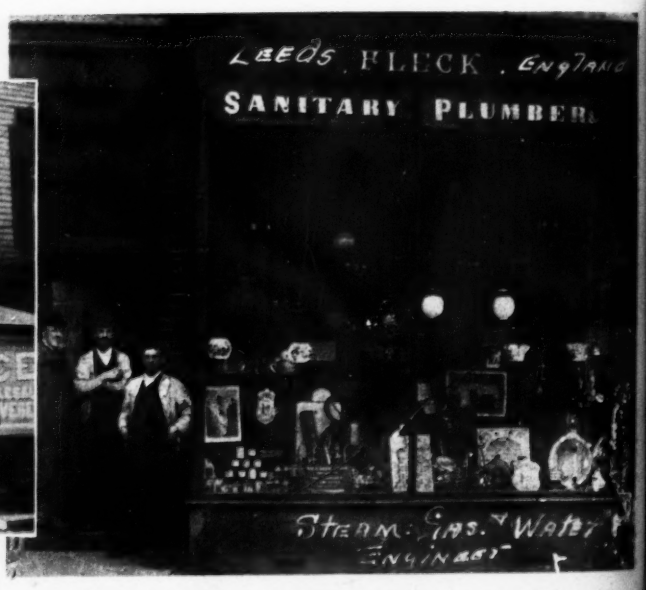
Our Family Album

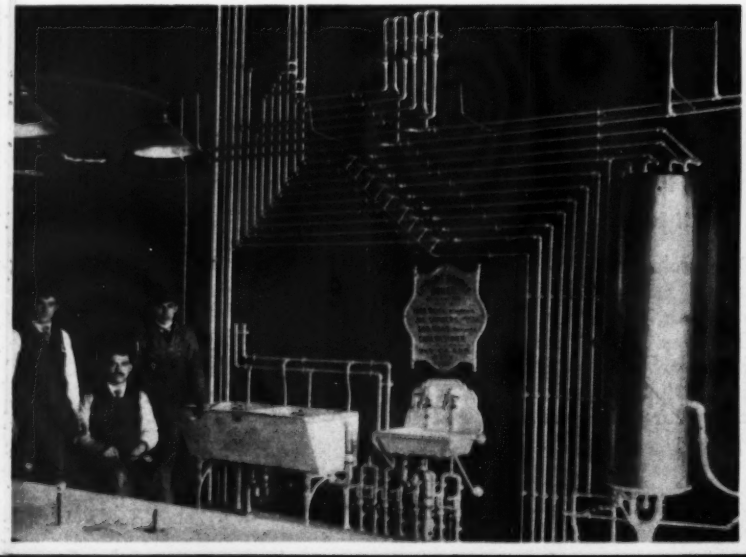
Local color in the plumbing business at the turn of the century

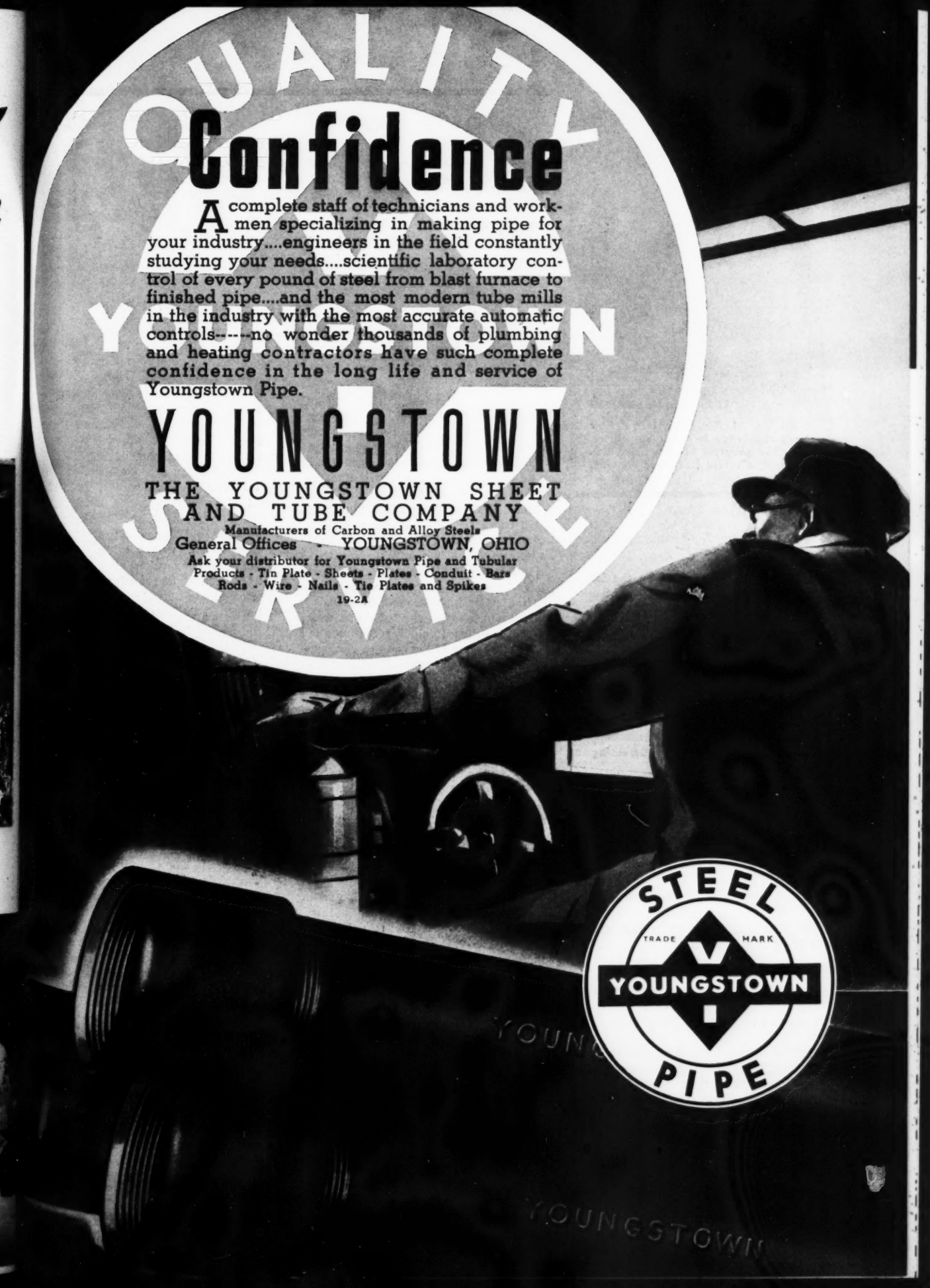
Above, James A. Durr in the office of his first shop in Montclair, N. J. Photograph made in 1905. Those were the days of handle-bar mustaches and ascot ties. Mr. Durr is the only remaining charter member "1898" of the Montclair, Bloomfield, Verona and vicinity M. P. A. Below, the shop and delivery wagon of W. H. Beeler at New Albany, Ind. The photograph was taken in 1900

Below, a plumbing installation made by students at the New York Trade School during the 1900-1901 school season. Lower right, the latest thing in delivery wagons as used by John H. Bechtel in 1909 in connection with his plumbing and heating business in Milwaukee, Wis.



Above, a picture of the plumbing establishment of Mr. John Fleck in Leeds, England taken in 1889. Note the numerous gas fixtures in the window and in the shop. This photograph was furnished by John H. Fleck, son of the founder, now in the plumbing and heating business in Beloit, Kan.

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Contractors

News of . . Men . . Associations . . Events

Sparkplug of the drive for a New York state code is Jacob Stockinger, Jr. The progress of this drive was outlined at recent Rochester meeting.

Summary

● The meeting scheduled by the Dayton association in honor of Henry Saunders developed, as a result of fine promotion, into an all-state, all-industry get-together. Blank, McCollum, Nash and L. L. Smith were among the speakers.

● Jacob Stockinger, Jr., is making good the promises made when elected president of the New York state association. Last month found him addressing a giant rally in Rochester.

● The American Society of Sanitary Engineering, meeting in St. Louis, named Earl Schavey president. The convention went on record in some aggressive and basic resolutions.

● Last month saw practically the end of the picnic and outing season, with Los Angeles, Utah and other groups holding annual affairs.

● Texas inspectors have organized a state plumbing inspectors association. First meeting is to be held in Galveston this month.

● The Birmingham, Ala., association is putting its increasing membership to work to curb the inflow of insanitary fixtures from slum clearance projects.

● The next Ohio regional meeting is scheduled for Coshocton, October 20. These meetings have attained some prominence for constructive discussion.

N. Y. Code

● *Stockinger addresses largest Rochester meeting in years.*

Rochester entered the fight for a New York state plumbing code at a meeting of master plumbers on September 19. Jacob Stockinger, Jr., state president, aroused much enthusiasm in his address on this topic. It was the largest Rochester plumbing meeting in years.

Under the proposed code a plumbing board composed of a physician, a master plumber and a journeyman would be set up in each county to see that plumbing installations are made expertly by competent master plumbers, and that rigid inspections are made.

Studies are to be carried on in four or five counties (including Monroe, in which Rochester is located) to enumerate the number of fixtures installed annually for the purpose of determining whether the program can be financed through an additional installation charge of one dollar on each fixture.

Mr. Stockinger revealed that, since his inauguration, he has made two tours over the state to discover the feeling toward the projected code. He stated: "Plumbing is a health measure, and we feel that if we have the state health department back of us there will be supervision. For that reason, the enforcement of the code will rest with the health department, with a master plumber, a journeyman and a physician constituting the board for each county.

"The board will see that only men who are qualified are permitted to do plumbing work, and that honest inspections are made of every job."

Mr. Stockinger said he will visit every city in the state to build up strength for the coming fight. The last bill died in committee in the last session of the legislature because of the cut in the state budget and the demand for reducing expenditures. Yet, Mr. Stockinger estimated, "it would add only $20,000 a year to the expenses of the state health department. Contrast that small sum with this health measure for all of the people, the benefits of which cannot be measured in dollars and cents."

Fred Neussle, new president of the Rochester association, presided at the meeting.

Coast Inspectors

One hundred fifty to 175 plumbing inspectors representing some 80 cities in the eleven western states and British Columbia are expected to attend the tenth annual convention of the Pacific Coast Plumbing Inspectors Assn. at the Biltmore Hotel, Los Angeles, Oct. 12, 13 and 14.

Edward Beale, municipal plumbing inspector of San Diego and president of the association, will preside. Chairman of the convention committee is A. R. Lott, assistant senior plumbing inspector of Los Angeles, who collaborated with E. R. Longley, chief inspector of Los Angeles, in making the arrangements and drafting the program for the conference.

Problems affecting plumbing inspection in the smaller towns, which as a rule never have more than one inspector, have been given a prominent part on the convention schedule, Stephen I. Smoot of Los Angeles, association secretary, announced.

To Discuss Code

Other matters to be presented for discussion and action concern the state gas, state plumbing and standards of water codes. The California Uniform Building Code, which was recently completed by a committee of 100 architects, building managers, contractors, engineers and plumbing and heating authorities under the general supervision of the state chamber of commerce, has been given a place on the convention program for discussion of provisions affecting plumbing.

Secretary Smoot, in behalf of the Los Angeles delegation of 40 city plumbing inspectors, announced he will ask the convention to go on record opposing the recent state legislative enactment which codified the California State Housing Act so that, beginning September 19, plumbing inspection divisions of California cities came under the jurisdiction of the state health and safety department.

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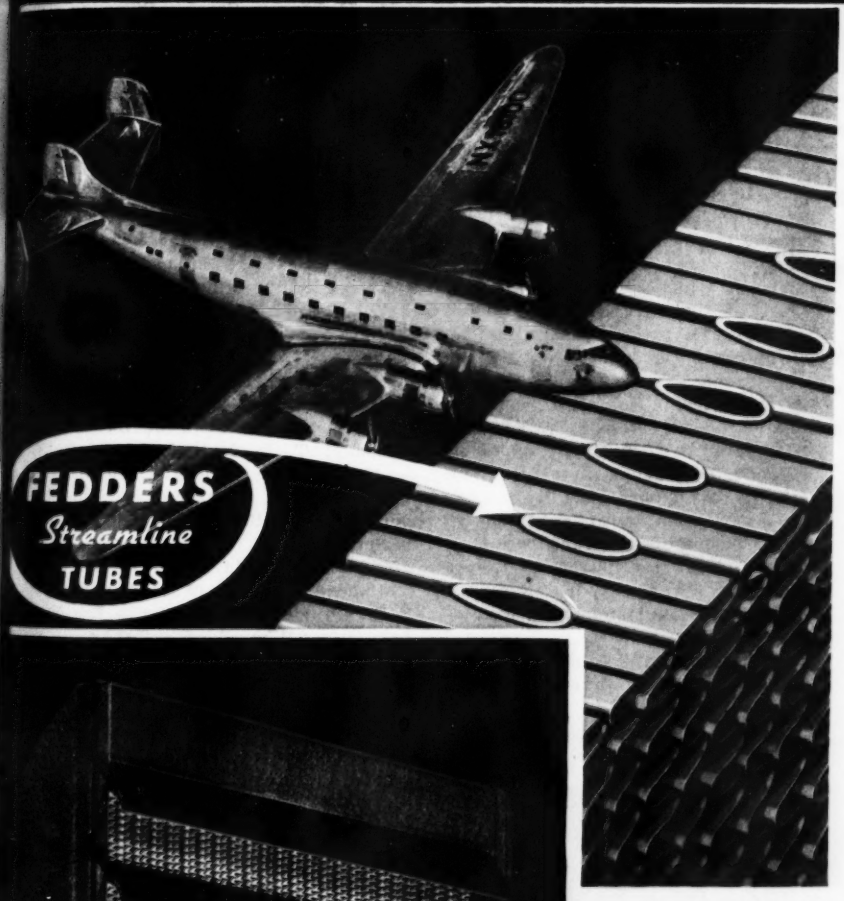

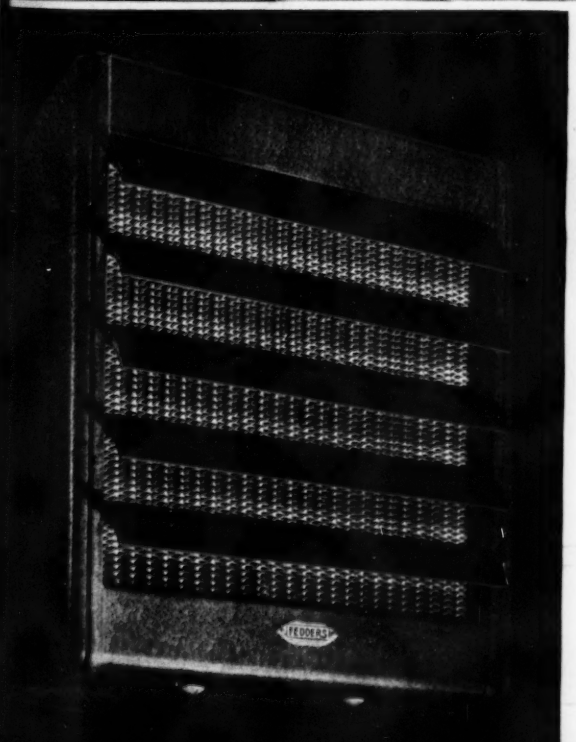

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Ohio Mid-Year

• *Dayton meeting in honor of Saunders turns into full-fledged convention*

The Dayton Assn. of Master Plumbers was host at an unusual meeting September 29. Planned as a zone meeting in honor of Henry Saunders, state vice president, it developed into a mid-year state convention, with members attending from widely separated parts of the state and from Michigan and Indiana as well.

The get-together was sponsored jointly by the local association, by W. H. Kiefaber Co., the Acme Supply Co. and M. J. Gibbons Supply Co.—all local wholesalers; The Duro Co., Dayton; Ross-Willoughby Co. and American Radiator & Standard Sanitary Corp., Springfield, and wholesalers of other nearby cities.

In preparation for the event the cooperating wholesalers mailed out announcements and personally contacted their customers, urging them to attend. Both members nad nonmembers came, making a gathering of 250.

Following a buffet supper Dayton Pres. Henry J. Osterfeld called the meeting to order and introduced Mr. Saunders, who acted as chairman. D. C. Freer, Cleveland, secretary of the Ohio Credit Exchange, the first speaker, advised his listeners to sell their jobs at a profit.

The next speaker, W. E. McCollum, secretary of the Central Supply Assn., suggested methods of improving conditions and successfully competing with other sources of distribution. He urged contractors to join their local associations and to work with their fellow competitors. Mr. McCollum also suggested that the plumbing and heating contractor and the entire industry as well would be in a better position to compete with dtu.'s and others if the price to the consumer were stabilized and the consumer informed of the net price, instead of being confused by various price discounts.

C. B. Nash, vice president and director of publicity for American Radiator & Standard Sanitary Mfg. Corp., urged the industry to be aggressive and to be optimistic about the future. Mr. Nash declared that selling the importance of the master plumber's services in protecting the health of the nation is still the best method of approach for the industry.

Blank Talks

L. L. Smith, Kohler Co., spoke upon the need for greater cooperation among the various elements in the industry and stressed the importance of educating the public to the comparative low cost of good plumbing.

The Dayton association was complimented upon its initiative by H. D. Bullock, president of the Ohio Wholesalers of Plumbing and Heating Materials.

N. A. M. P. Pres. Henry S. Blank laid aside his national responsibilities for the evening and announced that he was speaking as a member of the Dayton association. He called particular attention to the harmonious relations of the local suppliers and manufacturers with the Dayton association, and declared that it was time for unaffiliated master plumbers to accept some of the responsibilities and contribute their share of both time and money toward building up the industry by joining and working with association members.

Ed Klein, Cincinnati, past national president, cited as a benefit of association activities the satisfactory sales policy which the Cincinnati association obtained from the local public utility. He gave various other legislative and distributional benefits as examples.

Other speakers were Joe Keim, N. A. M. P. secretary; N. S. Larsen, Toledo, president of the state group; Herman Eckhardt, Cleveland, state secretary; state Directors Charles Hoffman, Mansfield; Bill Gesling, Lancaster, R. J. Cluxton, Cincinnati, and James Fitton, Bellaire.

Other guests included G. F. Ahlbrand, assistant vice president, American Rolling Mill Co., Middletown, Ohio; Frank Lent, N. A. M. P. director of Saginaw, Mich.; Howard Reed, Michigan association secretary; J. W. Quibbell, president, Michigan; George Riber, vice president of the Detroit association; H. F. Beglen, vice president, American Radiator & Standard Sanitary Corp.; John Niewoehner, past state president, Indiana; Ed Frank, past N. A. M. P. secretary; Tom Schraeder, branch manager, Kohler Co., Chicago; E. T. Barrett, chief, Ohio Plumbing Inspection department; Mr. Short, branch manager, Crane Co., Lima; Tom Byrd, manager market research department, American Rolling Mill Co.

M. J. Gibbons, president of the M. J. Gibbons Supply Co.; W. H. Kiefaber, president, W. H. Kiefaber Company; R. J. Makarius, president, Acme Supply Company; all of Dayton were introduced, also Dick Baird of the Duro Company; T. Beadon, of Treaty Co.; Joe Clayton, Ross Willoughby Company, and H. Moesner, manager of the American Radiator & Standard Sanitary Corp. of Springfield.

The committee in charge of the arrangements consisted of Mr. Saunders; J. E. Withers, manager of the Dayton Association; Wm. Burrus, manager of the M. J. Gibbons Supply Co.; Wm. Stoermer, W. H. Kiefaber Co.

Part of the throng of 250 present at the September 29 meeting of contractors, wholesalers and manufacturers in the Miami Hotel, Dayton, Ohio

Greek history records the story of the torch-bearers at religious festivals—and also the runners who carried fire from an older house to the hearth of every new home.

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Torch-bearer to the Gas Industry!

If today one were searching for "torch-bearers" in the *gas burner field,* he could not pass by the name of BARBER. Through scientific research and progressive design, Barber has carried the "flame" of efficiency to the doorstep of every builder of gas appliances.

A gas appliance is only as good as its burner. In 20 years' experimentation, Barber has developed its impinged jet principle to the highest flame temperature so far attained on atmospheric pressure—1900°. This represents almost the only advance in 25 years in basic methods of combustion, since virtually all other burners still employ the primitive "Venturia Tube" principle.

The burner is the heart of the appliance—determines its performance, its salability. Manufacturers of standard appliances to the number of 157 have adopted Barber Burners. Realization of this fact should prompt *dealers and buyers* to check up and see if *their* appliances are Barber-equipped.

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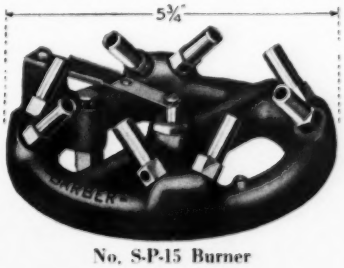
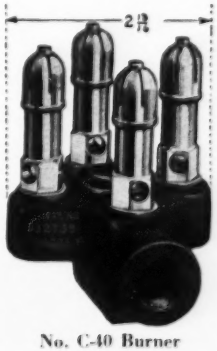
We are gas burner specialists, and offer you freely our laboratory and engineering facilities on the design and manufacture of burner units appropriate for your specific purposes. Write for complete Catalog and Price List on Burner Units for Gas Appliances, Conversion Burners for Furnaces and Boilers and Gas Pressure Regulators.



No. S-P-15 Burner



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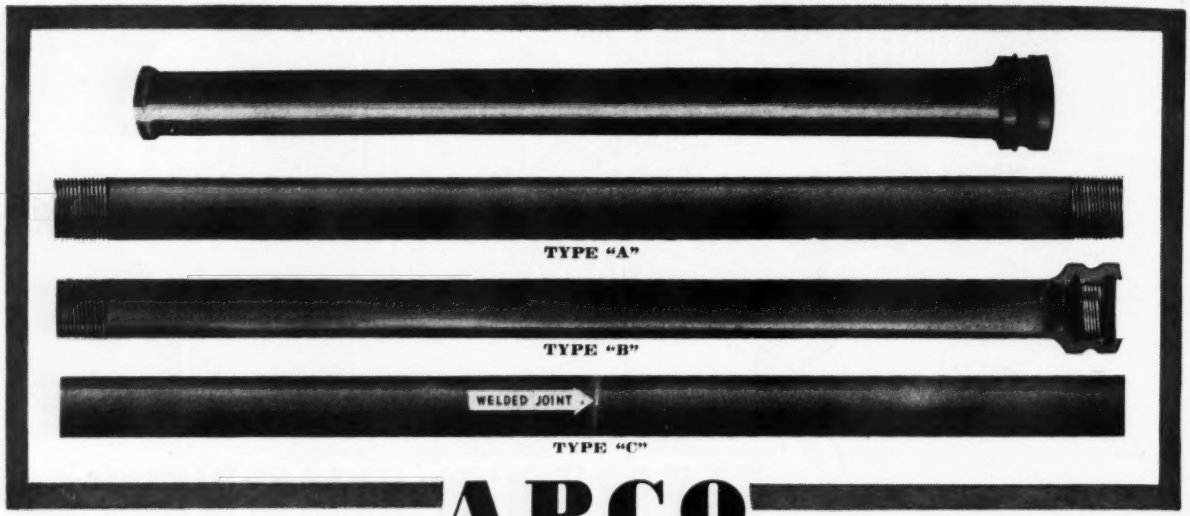

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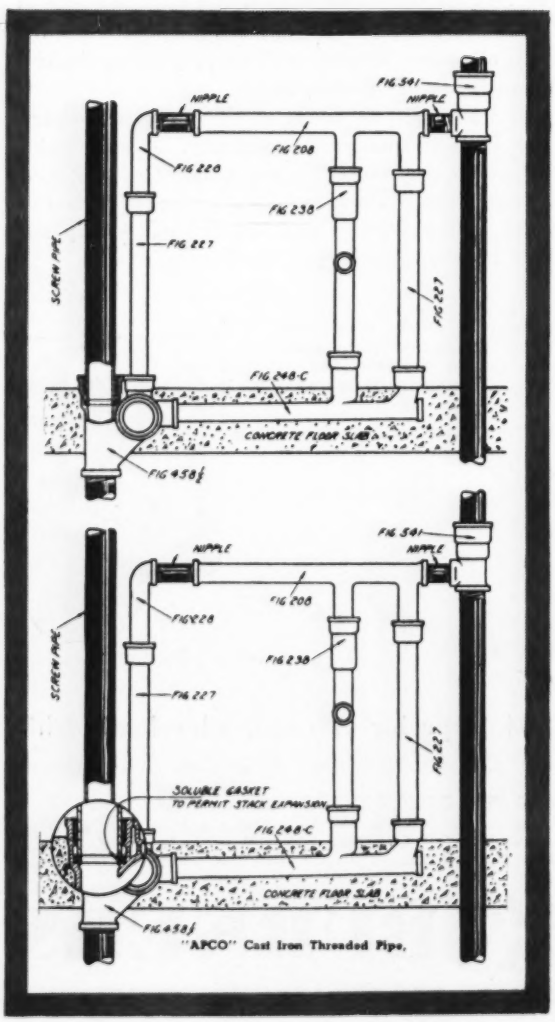

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A.S.S.E.

• *Earl Schavey elected president at annual meeting at St. Louis*

(This continues the report begun in last month's issue.)

Earl C. Schavey was elected president at the recent annual meeting of the American Society of Sanitary Engineering, held in St. Louis, August 22-25.

Other officers are Walter A. Dunn, Minneapolis, first vice president; Luke J. Devine, Elizabeth, N. J., second vice president; George F. Fitzsimons, Toronto, Ont., third vice president; H. C. Schaller, Miami, Fla., fourth vice president; Irving A. Fuller, Denver, fifth vice president; William D. Hobro, San Francisco, sixth vice president; A. J. Farrell, Portland, Ore., seventh vice president; Jere F. Doud, Cincinnati, treasurer; James R. Walker, Waterbury, Conn., secretary; Thomas J. Lee, Pittsburgh, and Stephen H. Gilmore, St. Louis, new directors.

Edwin W. Cade is the retiring president. Stephen H. Gilmore was chairman of the local convention committee which managed details of the convention.

One of the most important resolutions was adopted as follows: "That all water inlets to, and waste outlets from, refrigerating and all air conditioning units or systems, whether refrigerated or not, must be installed or made by a plumber under the locally applicable plumbing rules and practices; and that any water supply fed to such a system shall be provided with a check and vacuum valve at an appreciable level above the highest water containing part, and that any drain therefrom must not be directly connected to a pipe or system containing soil, waste or polluted water."

Other Resolutions

A second important resolution adopted follows: "Resolved that steps be taken in every state, city or town having plumbing or health codes, to place a controlling section or sections in force to accomplish the following: Make it unlawful for anyone as agent, owner, or prospective tenant to permit any person to occupy or to take up residence in any building or housekeeping unit which has been vacated by a previous tenant, until after it has been certified by the said officials that the structure is free of vermin, its plumbing is safe, no fire hazards exist, and that it is structurally safe. A permit for re-occupation is recommended."

A third principal resolution was adopted as follows: "(Resolved that) insofar as Committee A40, American Standards Assn., and its sub-committees are concerned, especially subcommittee 1, they be so constituted that the said three elements be preponderant in voting power, through additional delegates or otherwise, as follows:

"(A) The public interest personified by the plumbing inspection official, whom this society assumes to represent, without whose active cooperation a promulgated American standard will not be effective and, therefore, merely a gesture;

"(B) The master plumber, whom the N. A. M. P. assumes to represent, without whose purchase of the material covered by the promulgated standard, would make it void and ineffective; and

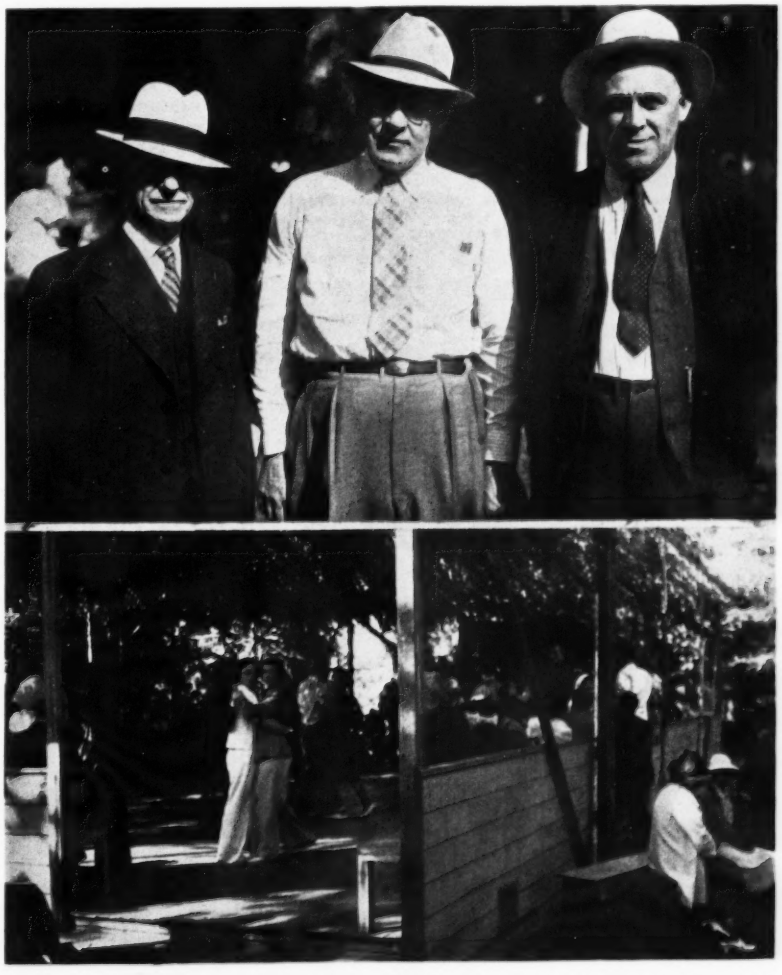
"(C) The journeyman plumber, assumed to be represented by the United Assn. of Journeyman Plumbers and Steamfitters, who installs the material, and whose interdiction would void the promulgated specification."

S. F. Picnic

Under the spell of holiday-making, Atherton Park became the scene of fun and gaiety, when nearly 200 members and guests and their families attended the annual picnic of the San Francisco Master Plumbers Assn., recently.

With never a dull moment for oldsters nor youngsters, trade matters were forgotten in favor of games, contests, lunches and the award of a long list of prizes. Dancing was enjoyed all afternoon. Among the winners of the twelve events were: Chas. Noury, Jr., horseshoe pitching; Mrs. John Moresco, clothesline race; Mrs. Chas. Mayer and Messrs. James Dugan and John Moresco, apron and necktie race; Chas. Mayer, family representation.

The program was arranged by President Harold Bertram. Among the various committee members were Alex Forno, Wm. Koenig, Victor Peterson, Wm. Plevin, Chas. Welch, Kenneth Fahy, Ed. Balling and Wm. P. Goss.



At annual picnic of San Francisco Master Plumbers Assn.: above—Alex Coleman, past N. A. M. P. secretary; J. J. McLeod, state president; Harold Bertram, San Francisco president; below—one of the popular diversions at the outing

L. A. Picnic

The annual picnic of the Federation of Master Plumbers of Southern California was held at Royal Palms Park, San Pedro, on September 17. Thomas A. O'Neill, business manager of the Merchant Plumbers Assn. of Los Angeles which played a prominent part in arranging the affair, announced that there was an attendance of 1,000 including 400 members of the various affiliated associations plus their families and friends.

Organizations which participated were the associations of Glendale, Long Beach, Burbank-San Fernando, San Pedro, Santa Ana, Ventura, Santa Monica, Orange Belt (Riverside, San Berdardino, Colton, Redlands), Los Angeles and Pasadena.

N. Y. Golf Day

The annual golf day and dinner for the Westchester County Master Plumbers, Heating and Sheet Metal Contractors, Inc. was held this year at Gedney Country Club, White Plains, N. Y. on September 12. Officers of this association include William L. Harmonay, president; Sidney Winkel, vice-president and William Klesius, treasurer.

Ohio Meeting

The fall meeting of the Southeastern Ohio Assn. of Master Plumbers will be held in Coshocton on October 20. The program will be opened by a 6 o'clock dinner followed by speakers of prominence. Clarence Gilmor and J. H. Brown are in charge of the entertainment committee.

Texas Inspectors

Bryan Hartigan, secretary of the Texas State Plumbing Inspectors Assn. (newly organized), has announced that the first annual convention of the association will be held in Galveston October 22-24. H. M. Jones, Dallas, and William R. Tooley, Port Arthur, are president and vice president respectively.

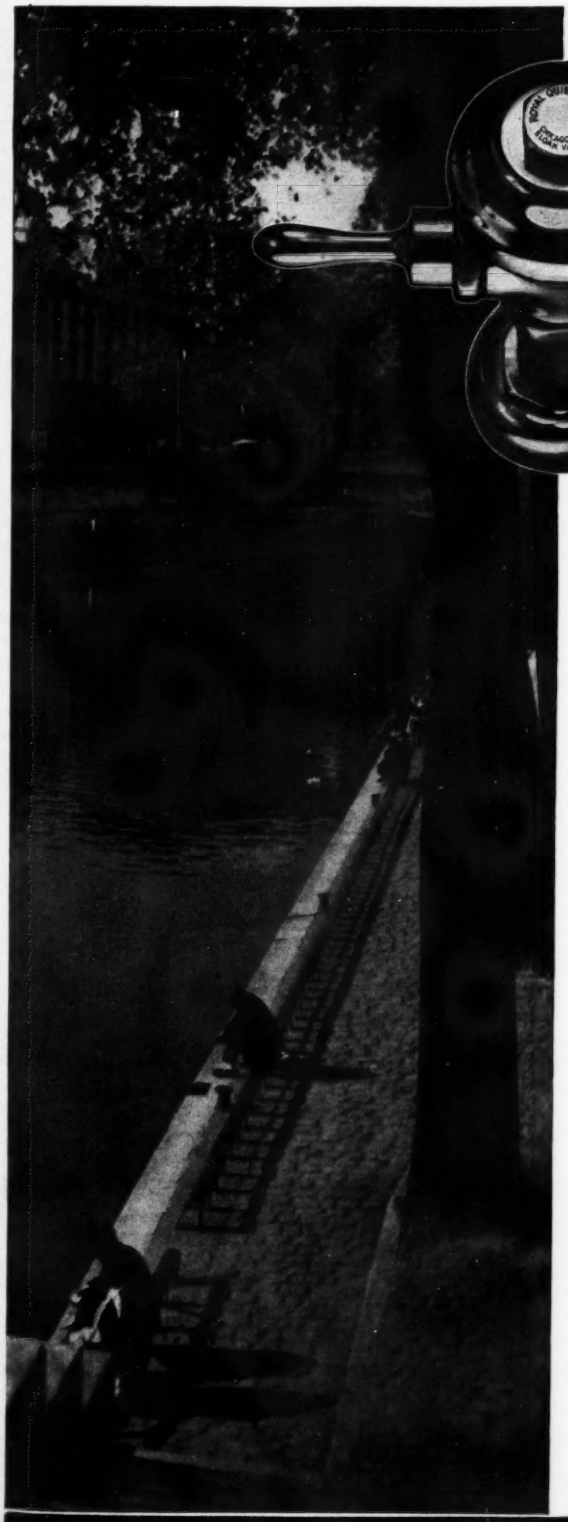
Birmingham Plans

Master plumbers of Birmingham, Ala. are now better organized than in years with 55 out of 63 in the county members of the newly organized and incorporated plumbing contractors association. Other members are coming in, membership being extended to both union and non-union shops.

The association has several objectives, one being to curb the flow of used fixtures from slum clearance projects into the city. The association's attorney, Kenneth Perrine, now has this matter in hand. The association also proposes to revive an ordinance which requires contractors to erect their signs on jobs. This will help city inspectors to enforce various regulations including the sticker ordinance.

Officers of the association are: Glady E. Martin, president; R. C. Parker, first vice-president; Thomas J. Reece, second vice-president; C. W. Spangler, treasurer and C. F. Parks, secretary. The association meets every Tuesday night.

At Delaware Valley meet: 1. C. C. Gerow, Jr. and Paul Davis, Speakman Co.; 2. Louis La Roche and Chas. Dick, Dick Bros. Co., Reading, Pa.; 3. Cliff Lord, manager, Tomlinson Co., Chester, Pa. and A. W. Hale, Stanley G. Flagg Co., Inc., Philadelphia; 4. Andrew Scharnagl, manager, J. D. Johnson Co., Inc., Camden, N. J. and captain of Delaware Valley Trade Golf Assn.; 5. Curtis Sinclair, Speakman Co. and Jack Squires, Central Tube Co., Philadelphia; 6. Chas. P. Hackett, president of the association, H. J. Kleinman, secretary and treasurer, and J. Fletcher Wright, sales manager of Speakman Co.; 7. Harold Held, manager, Kohler Co., Philadelphia; Ken Ford, Ford & Kendick, Inc., Philadelphia; Harry DeLeon, Fleck Co., Camden, N. J.; Don Coleman, Toledo Pipe Threading & Machine Co., Philadelphia; W. J. Busser, Busser Supply Co., Lewisburg, Pa.; Ray Groff, Malleable Iron Fittings Co., Philadelphia; 8. Robert Burns, Philadelphia; W. G. Waters, Riggs Distler Co., Baltimore; B. Harold Deacon, Philadelphia; Robert Bulman, Bulman Bros. Plumbing & Heating, Philadelphia; 9. A. M. Maddock, American Radiator & Standard Sanitary Corp., New York City; W. G. Robelen, Wilmington contractor; Joe Woods, Speakman Co., New York City; Wm. Behrer, Behrer-Nason, Inc., New York City; 10. H. F. Wageman, Bridgeport Brass Co. and J. Fraser, Speakman Co.; 11. Frank LaBaw, sales manager, Standard Tank & Seat Co., Camden, N. J.



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What is more—*any* Sloan flush valve in the above models may be made absolutely quiet—regardless of when installed. Merely replace the present stop valve with the Sloan *Quiet-Flush* stop, then insert in the valve itself a new type guide and seat. This simple change, readily made by any master plumber, reduces the roar of rushing water to a whisper—and virtually makes the old valve a brand new installation.

A new descriptive folder, with cross-sectional views showing how this miracle of quietness is accomplished—will be sent you upon request.

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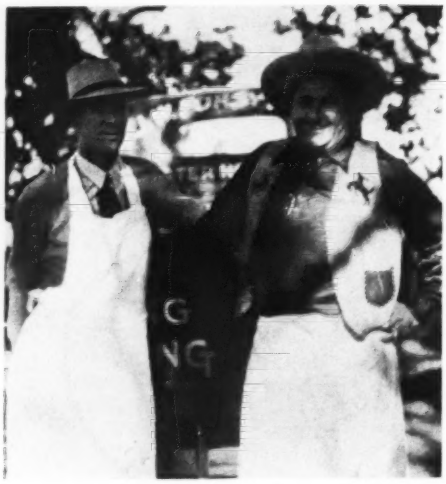


L. J. Renner, assistant, and J. W. Forsythe, chef, members who prepared 400 steaks for the recent San Francisco Plumbing & Heating Club barbeque

Ark. Reorganizes

The Arkansas State Master Plumbers Assn., which has been inactive for the past two years, was reorganized September 22. About 30 members of the organization met at the Ben McGehee Hotel, Little Rock in a preliminary meeting and formulated plans for reorganization. Hickey Himstedt, Little Rock, was re-elected president; Arthur Pfeifer, Little Rock, vice-president, and Joe H. Bilheimer, Little Rock, secretary-treasurer.

It was announced that a general meeting of the group will be held the latter part of October.

H. O. Green, Tulsa, treasurer of the National Assn. of Master Plumbers, was the principal speaker.

Buffalo Meet

G. E. Anderson, manager of the Buffalo branch of Crane Co., was host at a dealer meeting September 20 which was attended by a large number of plumbing and heating contractors of western New York. New heating products, new ideas in selling and displaying heating equipment and new merchandising methods were emphasized.

To Visit Fair

The Trenton, N. J. Master Plumbers Assn. is desirous of having a plumbing code adopted in Hamilton Township, adjacent to this city. A large municipal sewage system is being installed there.

This matter was discussed at a meeting of the association September 21 when plans were furthered by the organization for an active fall and winter program of business sessions and social affairs. The membership will participate in observance of "New Jersey Plumbers' Day" at the New York World's Fair, October 10. Donald B. Stewart, president of the group, will head the delegation.

Salt Lake Meet

Approximately 50 Salt Lake City master plumbers attended the meeting held under the auspices of Crane Co. at the Newhouse Hotel, Salt Lake City on September 8. Technical features of new heating products and equipment, and merchandising and business promotion ideas were discussed by J. T. Young, Jr., manager of the heating department; J. R. Reeve, and Sam D. Cunningham, branch manager. Refreshments were served after the meeting.

Portland Code

The new Portland (Ore.) plumbing code, passed some months ago but only recently effective due to a delay in printing, has been fashioned from the model code recommended by the U. S. Department of Commerce. The new code is a modernization of the old code passed in 1916, and involves numerous changes.

Geo. B. Otterstedt, chief of the city plumbing division, states, "The new code is a great improvement over the old one and is a fine forward step for the industry."

Graham Resigns

W. Herbert Graham has resigned as executive secretary of the Oakland, Calif. Master Plumbers Assn. Mr. Graham, who was first identified with the association as a member, is establishing his own business in the field of waterproofing engineering.

Sewage Plant

The Buffalo sewage disposal and treatment plant, known as the largest and most modern chlorination plant in the world, was dedicated September 14 at ceremonies which were attended by a large number of prominent plumbing and heating contractors of Buffalo and western New York. The project cost $15,000,000.

Edward P. Lupfer, directing engineer for the Buffalo Sewer Authority, which built the plant, emphasized that engineering fundamentally is a social service, and pointed out the significance of the project in the protection of public health.

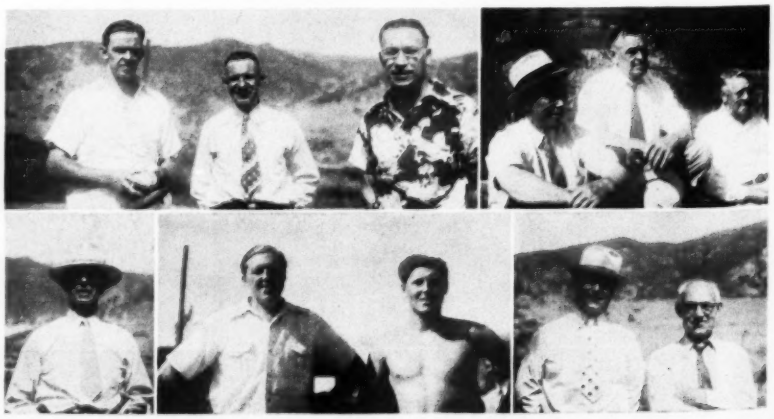
Utah Outing

The Salt Lake City Assn. of Licensed Plumbers held its annual outing for the entire Utah plumbing industry at the Lagoon resort recently. More than 250 attended.

An attractive program was arranged by the entertainment committee composed of Ambrose H. Higham, who acted as master of ceremonies; Marshall G. Ericson and James L. Morris.

The baseball game between sides chosen from the masters, supply house representatives and journeymen was a hard-fought affair, with Reg Chapman and Henry Chapman of Salt Lake City, finally out-pitching Ray E. Powers, superintendent of the Salt Lake City branch of Crane Co., to win by a score of 21 to 8. The Chapman family continued its winning ways by taking first place in the horseshoe games, with Reg and John H. Chapman starring.

A liberal supply of candy, faucets, shower curtains and other prizes were distributed to the contestants in the tug-of-war, which ended as a tie, and in the foot-races. Refreshments were enjoyed in the evening.



Photos taken at the outing of the Utah plumbing industry: (top) Curtis Evans; John H. Reeve, state secretary; Ray Powers, Crane Co.; Richard E. Swenson; Edmund P. Evans and John H. Chapman; (lower) A. H. Higham, past state president; Henry Chapman; Reg Chapman; James L. Morris, past state secretary; John L. Rasmussen

Why EVERDUR is the best metal for non-rust water tanks

EVERDUR . . . The American Brass Company's copper-silicon alloy... is rustless as copper, tough, weldable and moderate in cost. It has the tensile strength of mild steel.

Everdur Metal makes up into range boilers and storage tanks which have successfully withstood the most drastic tests. Such strength and toughness, plus sound welds and uniformly excellent resistance to corrosion, are mighty good reasons why Everdur is the most widely used metal for non-rust tanks and heaters of all types.

Homeowners everywhere are tired of rusty water and the annoyance and expense of tank repairs and replacements. *Master Plumbers* are making money by meeting the public demand for economical, non-rust hot water service. They're selling Everdur range boilers and automatic storage heaters with Everdur Tanks.

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Calif. Code

L. T. Mott, supervisor of housing of the California State Division of Immigration and Housing, on September 1 addressed a letter to city plumbing inspectors throughout the state directing attention to the fact that the California State Housing Act had been codified so that on and after September 19 it would be a part of the health and safety code enacted at the recent session of the legislature.

To plumbing circles the announcement signified a radical change in inspection administration.

Stephen I. Smoot, secretary of the Los Angeles unit of the Pacific Coast Plumbing Inspectors Assn., summarized the attitude of the largest chapter of the association in the following statement:

"Los Angeles, and to a lesser degree, San Francisco, will be affected by the new ruling to a more serious extent than cities that have only one or two inspectors. Los Angeles has 40, San Francisco about 12. The change will seriously affect our programs. Under existing conditions the plumbing inspection division of Los Angeles is self-sustaining from receipts derived from permits. If we are transferred to the health department that revenue will be eliminated and the taxpayers will be burdened with additional appropriations for our division."

Mott's communication stated no substantive changes were brought about in the codifying process, but that there had been a complete rearrangement and renumbering of the section, together with several clarifications of the act as written.

The rearrangement and restatement of the Housing Act, Mott explained, was in line with the program of the state code commission created in 1929 to codify existing statutes, and among other things to clarify their purpose and intent and to facilitate their accessibility and application.

A. C. Conference

Air conditioning in relation to health, the most practical methods of operating and servicing air conditioning systems, and interesting applications of air conditioning in industry will be featured at the Eastern Air Conditioning Conference at Lehigh University, Bethlehem, Pa. on November 10 and 11.

Among the outstanding speakers scheduled for papers and addresses are Dr. Philip Drinker, Harvard School of Public Health ("Air in War") and Frederick E. Giesecke, College Station, Texas.

Sewage Works Assn.

The California Sewage Works Assn. held its annual convention in San Francisco, September 18, with 150 members and guests attending. New officers are: H. G. Smith, Los Angeles, president; Harold F. Gray, Oakland, vice president; Fred Bowlus, Los Angeles, second vice president; William Ingram, Stockton, secretary-treasurer.

N. Y. Outing

On September 7 the Manhattan (N. Y.) Assn. of Master Plumbers held its annual outing at Karatsonyi's, Glenwood Landing, Long Island. Members and guests left New York by bus early enough to arrive for breakfast. After a day of activities, including a ball game, a shore dinner was served. Henry H. Berg was chairman of the entertainment committee.

Plans Program

The Master Plumbers Assn. of Buffalo will hold its first meeting after the summer recess on October 12 in the association headquarters in the Root Bldg.

The program for the winter months will be among the matters discussed at this meeting.

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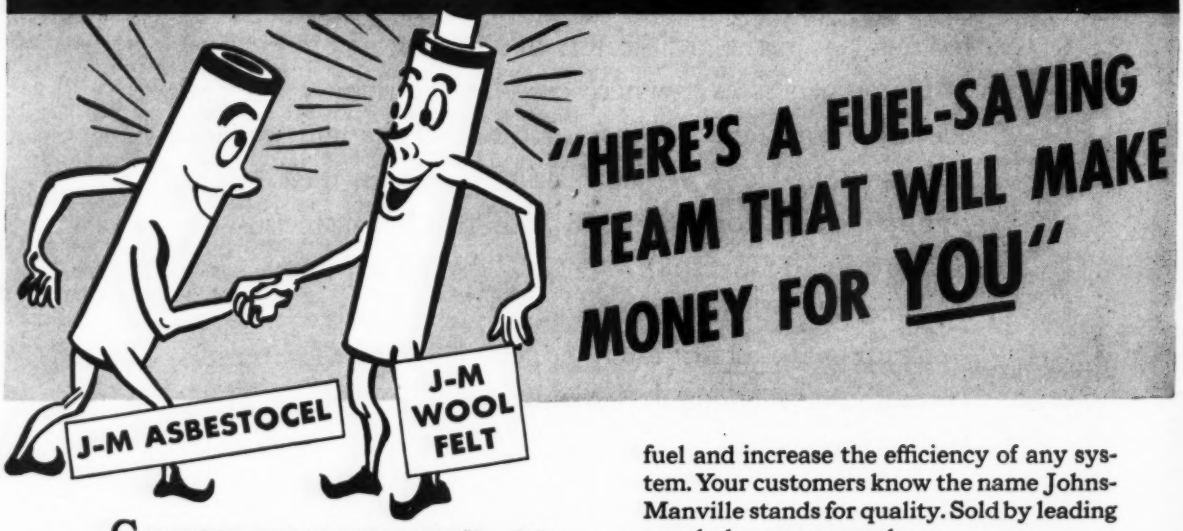

COVER EVERY BARE PIPE! Use Johns-Manville Pre-Shrunk Asbestocel for heating lines, J-M Pre-Shrunk Wool Felt for domestic water-service lines. They save fuel and increase the efficiency of any system. Your customers know the name Johns-Manville stands for quality. Sold by leading supply houses everywhere.

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JOHNS-MANVILLE INSULATIONS FOR PLUMBING AND HEATING SYSTEMS

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BETHLEHEM PIPE

You can cash in on the publicity directed toward rural plumbing prospects by offering clean, long-lasting Bethlehem Pipe.

Bethlehem Pipe has the thoroughgoing dependability and reliable name that value-conscious farm owners demand in every purchase they make.

Bethlehem Pipe is tried-and-proved absolutely sound. Every length is tested under hundreds of pounds of water pressure. Only A-1 pipe . . . pipe that is free from leaks . . . gets a final O.K.!

Moreover—Bethlehem Pipe offers an advantage to your own work. It is uniform . . . cuts, threads, welds and bends without troublesome delay. You'll find Bethlehem Pipe a profitable pipe to handle and install—a pipe you can count on to hold customer good-will and bring repeat business.

BETHLEHEM STEEL

BETHLEHEM STEEL COMPANY

Canton Outing

Eighty master plumbers and friends attended the recent annual outing of the Canton, Ohio Master Plumbers Assn., held at Orchard Hills Country Club. Entertainment features were golf, a one-act play, vaudeville, music and dancing. Frank Ceckler was tops at golf with the lowest gross score—81. William Roth, Jr. won the intelligence test.

Los Angeles Plans

Thomas A. O'Neill, former business manager of the Glendale, Calif., Master Plumbers Assn., is the new manager of the Merchant Plumbers Assn. of Los Angeles. He succeeds Scott E. Johnston, who died July 20 after five years' service with the organization.

Steve Crary, until recently business manager of the Alhambra association, replaces Mr. O'Neill at Glendale.

Mr. O'Neill has perfected plans for the improvement of the already splendid meeting facilities of the Los Angeles association. The three-story building is one of the best equipped of any operated by west coast groups. The organization occupies the second and third floors, with the ground floor leased to business firms. Facilities include an auditorium seating 900, a meeting room seating 200, a billiard room, reading and lounge room, dining room, kitchen and the general offices of the association.

New Contractors, Business Changes

Tonasket, Wash.—Tonasket Plumbing Co. has been organized by E. A. Royer and John K. Bucknell.

Colonial Beach, Va.—Harris Bros. & Co., Inc. has been chartered to conduct a general plumbing business.

Somerville, Mass.—Union Plumbing & Heating Co. has been established at 324 Somerville Ave.

Moose Jaw, Canada—J. J. Tigue, a past president of the North Dakota Assn. of Master Plumbers, is closing out his business in Minot, N. D. and will join A. A. Frost in the Frost Plumbing Co. in Moose Jaw, Sask.

Fort Lauderdale, Fla.—The City Plumbing Co. is the name of a new business established by J. L. and Ruby Elmore and R. McGuire.

South Gate, Calif.—The Metropolitan Plumbing Co. has engaged in business at 8323 Long Beach Blvd.

Los Angeles—The Thomas H. Hogan Co. has been formed at 2240 W. Washington St. to carry on a plumbing, heating and ventilating business.

Columbus, Wis.—Melvin Hawkos, a former employee, has taken over the business of the Columbus Plumbing & Heating Co. and has renamed it the Hawkos Plumbing & Heating Co.

Los Angeles—Joe Willis Plumbing Co. has opened business at 948 S. La Brea Ave.

Obituaries

W. B. Maddock

William B. Maddock, 62, son of the late John Maddock, one of the pioneer manufacturers of Trenton, N. J., and head of the Old John Maddock's Sons Pottery Co., died September 24, at his home in that city. Mr. Maddock was a former banker, and he was interested also in fraternal and civic activities. His widow survives.

C. L. Norton

Prof. Charles Ladd Norton, 69, a member of the faculty of Massachusetts Institute of Technology and a widely known authority and consultant on heating, died September 9 at his summer home in Annisquam, Mass. He was a director in many companies and a member of several engineering and technical societies.

J. B. Leineweber

John B. Leineweber, for more than three decades active in the plumbing supply business in Portland, Ore., died September 4. He had early been associated with M. L. Kline Co. and more recently with Stone Supply Co.

E. N. Foss

Eugene Noble Foss, 80, board chairman of B. F. Sturtevant Co., Boston, died September 13 at his home in Jamaica Plains, Mass. Mr. Foss became associated with the company as a salesman. On the death of the founder, Mr. Sturtevant, he became treasurer and general manager and, finally, president. He was governor of Massachusetts for three successive one-year terms from 1910 to 1913.

Thomas Heer

Thomas Heer, veteran master plumber and member of the contracting firm of Heer Bros., Baltimore, Md., died September 1 in that city. For years he had been an active member and leader in the Baltimore Progressive Master Plumbers Assn.

Charles Legg

Charles Legg, Oklahoma City, Okla., manager for Crane Co., died recently. He had held that position for 38 years.

Convention Dates

October 5.—BUREAU—Annual meeting of Plumbing and Heating Industries Bureau; to be held in the Palmer House, Chicago.

October 5-6.—SUPPLY—Fall meeting of the Central Supply Assn.; to be held in Chicago with headquarters at the Palmer House.

October 9-12.—A.G.A.—Annual convention of the American Gas Assn.; to be held in New York City with headquarters in the Hotel Pennsylvania.

October 12-13.—SUPPLY.—Meeting of the American Institute of Plumbing and Heating Supply Associations; to be held in New York City, with headquarters in the Commodore Hotel.

October 12-14.—INSPECTORS.—Annual convention of the Pacific Coast Plumbing Inspectors Assn.; to be held in Los Angeles, with headquarters in the Hotel Biltmore.

October 17-20.—A.P.H.A.—Annual meeting of the American Public Health Assn.; to be held in Pittsburgh, with headquarters in the Hotel William Penn.

October 18-20.—ENAMEL.—Fourth annual forum of Porcelain Enamel Institute; to be held in Columbus, Ohio, at Ohio State University.

October 22-24.—INSPECTORS.—First annual convention of the Texas Plumbing Inspectors Assn.; to be held in Galveston.

October 22-27.—WELDING.—Annual meeting of the American Welding Society; to be held in Chicago, with headquarters in the Stevens Hotel.

October 30-31.—A.S.H.V.E.—Fall meeting of the American Society of Heating and Ventilating Engineers, to be held in Atlanta, with headquarters in the Atlanta Biltmore Hotel.

November 4.—JOBBERS.—Annual dinner-dance of Jobbers' Credit Assn., Inc.; to be held in the Hotel Commodore, New York City.

November 10-11.—A.C.—Eastern Air Conditioning Conference; to be held at Lehigh University, Lehigh, Pa.

January 22-26.—A.C. SHOW—Sixth International Heating and Ventilating Exposition; to be held in Cleveland in Lakeside Hall.

January 22-26.—A.S.H.V.E.—Annual meeting of the American Society of Heating and Ventilating Engineers; to be held in Cleveland.

May 13-16.—CALIF.—Annual convention of the California State Assn. of Master Plumbers; to be held in San Francisco, with headquarters in the Palace Hotel.

Women

Conducted by Dorothy Edwards

Mrs. A. A. Powell, El Paso, Texas, new director of the Women's Auxiliary to the National Assn. of Master Plumbers. Mrs. Powell spoke at the recent New Mexico Convention

Summary

● October sees the end of the summer slump in the more serious activities of master plumbers association auxiliary activities, sounds the finale for such exclusively summer activities as outings and picnics.

● Auxiliary chapters right now are perfecting plans for their fall and winter activities, drafting programs for the year. Read this page for news of women associated with the plumbing and heating industry.

● Secretaries: Send in news of your auxiliary's functions and achievements, with pictures if available, to Dorothy Edwards, DOMESTIC ENGINEERING, 1900 Prairie Ave., Chicago. DOMESTIC ENGINEERING is always glad to publicize the doings of your chapter and to inform its readers nationally about your functions.

Chicago S. Side

The latest regular meeting of the South Side (Chicago) Women's Auxiliary was held September 13 at the Miramar Hotel. Twelve members attended, with Mrs. John Guldan presiding. The meeting was in the form of a luncheon, with bridge following. Mrs. Bishop, Mrs. Ann McHugh and Mrs. Fred Hager won the honors.

Mrs. Julia McKenna has asked the south side group for its cooperation in giving another card party and lunch for the members of the state auxiliary in downtown Chicago.

Cincinnati Meet

The first meeting in a season of expected activity was held by the Cincinnati auxiliary on September 12. The meeting was held in the Hotel Gibson. Luncheon was enjoyed first and then there was a discussion session and, finally, cards.

Portland Resumes

The Portland, Ore. auxiliary held its first meeting since the summer recess at the home of Mrs. G. Orlo Kendall on the evening of September 12. Mrs. Hare and Mrs. Gantenbein assisted Mrs. Kendall as hostess. Bridge and refreshments were enjoyed.

Among the social functions to be held this fall was a dinner to have been given September 28 at the home of Mrs. Frewen.

New Program

The Women's Auxiliary of the Progressive Master Plumbers Assn. of the State of Maryland has resumed its semi-monthly meetings, which are held on the second and fourth Thursdays of each month.

A new schedule of activities for the coming year includes the inspection of rest rooms in public buildings, for the purpose of promoting sanitation. Mrs. Charles Wachsmuth is president of the organization; Mrs. George A. Peters is secretary and Mrs. Frank Reger is treasurer. Mrs. Evelyn Walpert is publicity chairman.

York Picnic

The Auxiliary to the York, Pa., Master Plumbers Assn. held a picnic recently at the cottage of Mr. and Mrs. Harry E. Kottcamp in Konewago Heights. Features of the day were a picnic luncheon, afternoon contests and games, and an exchange of gifts.

Group photograph taken at the third annual convention of the national auxiliary (Atlantic City, N. J., 1923). This photograph was sent to DOMESTIC ENGINEERING for its 50th Anniversary issue by Mrs. E. D. Hornbrook

F. H. Steffens, president of Central Supply Assn. The group is meeting in Chicago October 5 and 6

Suppliers

News of Manufacturers and Wholesalers

Summary

● A new standard for sanitary cast iron enameled ware has been adopted and released by the Bureau of Standards. Sponsor is Sanitary Cast Iron Enameled Ware Assn.

● The date for the annual dinner-dance of Jobbers Credit Assn., New York City, has been scheduled for November 4. This event always attracts a capacity crowd.

● The final meet of the Delaware Valley Trade Golf Assn. was a great success from all standpoints. Speakman Co. played host.

● Representatives of several wholesalers' associations will meet October 12 and 13 in New York City at the next meeting of the American Institute of Plumbing and Heating Supply Associations.

● The Institute of Boiler and Radiator Manufacturers have undertaken a program which will reduce by a large percentage the number of standard radiation sizes. Substantial benefits are forecast for manufacturers and consumers.

● Three hundred manufacturers have already contracted for 75 per cent of the exhibit space for the A.S.H.V.E. air conditioning exposition, to be held in Cleveland in January.

● Food Machinery Corporation has expanded its interests along pump lines by the acquisition of Kimball-Krogh Pump Company, a division of Victor Equipment Company.

Radiator Sizes

● *Institute of Boiler and Radiator Manufacturers reduces number of cast iron radiator sizes by half.*

Unanimous approval by all manufacturers of cast iron radiation has been given to a program which will make effective a reduction of almost 50 per cent in the number of sizes of cast iron radiators. This program has been developed and sponsored by The Institute of Boiler and Radiator Manufacturers, New York City, and all manufacturers of cast iron radiators have signified their intention to produce only the sizes which have been adopted as standard by the institute.

Large tube radiation will be produced in seventeen sizes. This type of radiation heretofore has been produced in more than 30 sizes. The standard sizes of large tube radiation will be: four tube—20 in., 23 in., 26 in., 32 in. (30 in. by some manufacturers), 38 in. (36 in. or 37 in. made by some manufacturers instead of 38 in.); five tube—20 in., 23 in., 26 in., 32 in. (30 in. made by some manufacturers instead of 32 in.), 38 in. (36 in. or 37 in. by some manufacturers); six tube—20 in., 26 in., 38 in. (36 in. or 37 in. by some); seven tube—14 in. (13 or 13½ in. by some manufacturers instead of 14 in.), 17 in. (16½ in. by some manufacturers), 20 in. and 26 in.

Small tube radiation, which heretofore has been made in seventeen sizes, will hereafter be made in the following eleven standard sizes: 3 tube—25 in.; four tube—19 in., 22 in., 25 in.; five tube— 22 in. (or 23), 25 in. (or 26); six tube—14 in., 17 in., 19 in. (or 20), 25 in. (or 26), 32 in. (or 30). One manufacturer will produce 19 in. five tube radiation instead of 19 in. six tube; also on the 32 in. height, one manufacturer will produce 32 in. five tube instead of 32 in. six tube.

According to the institute, the manufacturers have adopted this program of simplification after a thorough study of the requirements of builders and home owners and they feel sure that by eliminating some of the sizes which have been previously offered and for which there is no real necessity and very little demand, the best interests of the manufacturers, distributors and the heating industry generally, as well as the home owner, will be served.

Principals at the August 23 meeting of Iowa credit managers in Des Moines: A. W. Hadley, George Johnson, George W. Scott, D. C. Knight, G. Phillips, D. R. Thomas (secretary), A. H. Davidsaver, H. T. Barry, E. L. Turner, C. H. Gimar. On this occasion George W. Scott was honored upon his retirement after more than 40 years' continuous employment with Crane Co. at Sioux City

Distributors

- *Wurzbach elected president of Wholesale Distributors Assn. of Texas—Effects of war on business discussed at annual meeting*

O. E. Wurzbach, president of the Alamo Plumbing Supply Company, San Antonio, Texas, was elected president of the Wholesale Distributors Assn. of Texas at its meeting in Galveston last month.

San Antonio was selected for the next semi-annual meeting to be held in March. Other officers elected included: Frank Cronk, Dallas, first vice president; D. S. Burke, Houston, second vice president; and Howard Weddington, Dallas, secretary (re-elected).

The executive committee named by the board of directors includes: O. E. Wurzbach of San Antonio, E. J. Kropp of San Antonio, and Frank Cronk of Dallas. New members are Messrs. Wurzbach and Kropp of San Antonio and D. S. Burke of Houston.

The concluding session was devoted to a discussion of the effects of the European war upon the economic life of the United States.

C. E. Redfield, American Radiator and Standard Sanitary Corporation delivered a paper on "Salesmanship and Sales Promotion as Applied to This Industry."

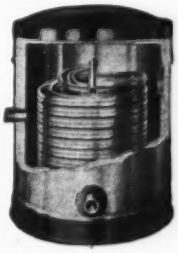
New officers of the Wholesale Distributors Assn. of Texas: (seated) O. E. Wurzbach, San Antonio, president; C. E. Johnson, Houston, retiring president; Howard Weddington, Dallas, secretary; (standing) Sul Ross, Waco, director; Frank Cronk, Dallas, first vice president; C. S. Jahns, Ft. Worth, director; D. S. Burks, Houston, second vice president

You Profit 12 Months of the Year!

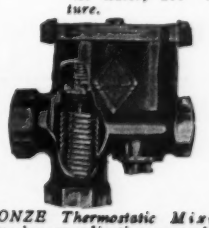
There's nothing seasonal about domestic hot water and there's nothing seasonal about *G & C* All Copper products. Because they provide your customers with an ample supply of domestic hot water *at all times* you stand to profit *12 months of the year.* Level off your seasonal business curve with the *G & C* All Copper line. Consult your wholesaler.

Write for Information on New Direct Oil Fired Everdur Tank Storage Heater. Rustproof Guarantee.

Also Manufacturers of *G & C* Copper and Copper Silicon Range Boilers and Storage Tanks.



The ALL COPPER Tankless Water Heater has a heavy ga., electric welded, boiler water shell. Smooth shell surface eliminates sediment collection. It is light in weight, well insulated. Made for 4 gal. and 6 gal. per minute delivery of hot water, 100° rise in temperature.



BRONZE Thermostatic Mixing Valve has an adjusting range from 100° to 200°. Can be used wherever source of water supply is above 150°. Factory set at 140°. All operating parts are out of water. There is no restriction of water flow. Made in 1" size only, but can be bushed to take ½" or ¾" pipe.

The ALL COPPER Submerged Coil Storage Tank is electric welded. Coil in tank eliminates pipe radiation loss. It combines features of Instantaneous Heater and Storage Tank. Furnished Horizontal only in capacities of 25-30-40-50-65 gal. Larger sizes on specification.

GERSTEIN AND COOPER CO.
1-3 W. 3rd Street, So. Boston, Mass.
NEW YORK CITY
BALTIMORE MD

Jobbers' Annual

The Jobbers Credit Assn., Inc., will hold its annual dinner-dance on November 4 at the Hotel Commodore, New York City. This affair is exclusively for members and their friends in the manufacturing industry.

Milton M. Goldsmith of Sam S. Glauber, Inc., is chairman of the committee, assisted by: Morris Abramowitz, E. E. Basch, A. M. Behrer, Paul R. Berryman, T. W. Bieder, Julius Buckman, T. Arthur Johnson, Julius Klein, Frank Michael, Leo M. O'Neil, T. W. Powers, Edward Sherman, Raymond L. Smith, Robert Smolka, Morris Speckler and Michael Weinsier.

Supply Meetings

The next scheduled meeting of the American Institute of Plumbing and Heating Supply Associations, which was originally slated for October 5 and 6, has been postponed to October 12 and 13. The sessions will be held in the Hotel Commodore, New York City.

The Central Supply Assn. is holding its annual meeting October 5 and 6 in Chicago.

N. E. Wholesalers

As this issue was going to press the Plumbing and Heating Wholesalers of New England, Inc., was holding its 22nd Annual Convention in the Mt. Washington Hotel, Bretton Woods, N. H. (September 23-25). A complete program of sports and entertainment features was scheduled to supplement the more serious business of the convention.

Fixture Standard

A new standard for sanitary cast iron enameled ware (CS77-39) has been adopted and released by the Bureau of Standards. It has been submitted to and approved by manufacturers, distributors, master plumbers and users. It is effective for new production from October 10. The standard was prepared at the instance of the Sanitary Cast Iron Enameled Ware Assn.

The purpose is to establish minimum standard specifications, definitions, inspection rules and methods of test and minimum requirements for sanitary cast iron enameled bathtubs, lavatories, kitchen sinks, laundry trays, drinking fountains and similar fixtures. Requirements include material, thickness, warpage, enameling, acid-resistance.

Contractor Meet

Eighty plumbing and heating contractors attended a September 19 meeting given by Malleable Iron Fittings Co., Branford, Conn. at the showroom of the Springfield Plumbing Supply Co., Springfield, Mass.

This was one of a series of similar meetings sponsored by the manufacturer in various cities recently.

Modine Conference

Seventy sales representatives of Modine Mfg. Co., Racine, Wis., convened at the home office on September 11, 12 and 13 for a stimulating sales and engineering conference. All meetings were conducted in a specially built convention hall on the fourth floor of the new plant No. 2. The conference was under the direction of Arthur G. Dixon, sales manager of the heating and air conditioning division. After his welcome, Sec. A. F. Thompson spoke on the expansion program of the division.

Much of the first day was devoted to a discussion of new products and exhibits. This was followed by a tour of the factory. In the evening Owen Desmond and M. J. Druse revealed the details of an increased advertising and sales promotion program. A. W. Seiler, president of The Cramer-Krasselt Co., the company's advertising agency, pointed out that close coordination of promotion and direct selling activities will benefit the entire sales organization.

During the three days all of the products were discussed from the angles of sales, engineering and application. Among the speakers were Benjamin Spieth, chief engineer; A. F. McGovern and W. F. Bilyeu, factory representatives; C. S. Simpelaar, R. C. Jepertinger, R. K. Williams and W. R. McMahon, sales engineers; C. T. Perkins, vice president in charge of engineering; W. C. Winkel, executive vice president, whose address climaxed the final day's program.

Although it has been nine years since the company substituted regional sales meetings for annual national conventions, this national session was so successful, officers say, that it seems probable that this type of meeting will be used hereafter.

At national sales convention of Modine Mfg. Co.: (top) W. G. Winkel, executive vice president, congratulates A. N. Goff for being the oldest man in point of service with the company; (immediately above) Bob Duy waits for his lunch with Milt Druse and T. L. Hasbrouck (the latter associated with The Cramer-Krasselt Co.)

Left: Group photo taken at the Modine conference; at right: early arrivals—P. F. Moser, Pittsburgh; George Maycock, Salt Lake City; "Bunny" Bunnell, Montana (spurning camera); Jim Hinchey, Atlanta, and "Pete" McMurry, Jacksonville, Fla. (already prepared with his notebook)

Fall Meet Program

The American Society of Heating and Ventilating Engineers has released the preliminary program for its fall meeting, which will be held October 30 and 31 in the Atlanta Biltmore Hotel, Atlanta.

The principal speakers and the titles of their papers follow: Prof. G. L. Tuve, "The Use of Air Velocity Meters"; B. E. Shaw, "Temperature Drop Characteristics of Room Thermostats"; C. T. Baker, "Food Preservation in the South"; C. F. Boester, "Application of Storage Refrigeration to Air Conditioning"; Prof. F. B. Rowley, "A Standard Air Filter Test Dust"; John H. Carter, "An Analysis of the Air Conditioning Contractor's Business Relationships"; F. B. Lanham, "Heating and Ventilating Problems as Related to Agriculture"; Prof. L. S. O'Bannon, "A Laboratory for Use in Determining the Influence of Various Temperatures and Relative Humidities on the Final Quality of Air-Cured Tobacco"; Paul D. Close, "Maximum Permissible Humidities in Humidified Buildings."

Unit Heaters

The fourth regular meeting of the Industrial Unit Heater Assn. will be held in Chicago October 6. It is expected that the standardization program of electrical equipment undertaken jointly with the manufacturers of fractional horsepower motors will be considered as well as a further report on the subject of corrosion in steam heating systems.

Truck used by The Deming Company, Salem, Ohio for displays and working demonstrations. The pumps are mounted over water tanks so that they may be shown in operation. The awnings fold down to make an ordinary panel body

A.S.H.V.E. Show

Business prospects for 1940 in the field of heating, ventilating, and air conditioning will be indicated at the Sixth International Heating and Ventilating Exposition to be held at Lakeside Hall, Cleveland, January 22 to 26, under the auspices of the American Society of Heating and Ventilating Engineers. Not only will the exposition present the latest methods and apparatus developed in this field, but the indicated extent and comprehensiveness of the displays gives assurance that the industry is determined to make the most of its opportunities next year.

Nearly 300 manufacturers have already engaged exhibit space, using more than 75 per cent of the space in the hall.

MERCOID'S FIRST THERMOSTAT

Fig. 21

This Mercoid Thermostat dates back to the pioneering days of automatic heat. ¶ So well was it engineered, that thousands are still in active use throughout the country, rendering the same dependable performance today as when they were first installed. ¶ A leader in the field then.

MERCOID
AUTOMATIC CONTROLS

FOR OIL BURNERS, STOKERS, GAS BURNERS, AIR CONDITIONING, REFRIGERATION AND VARIOUS INDUSTRIAL APPLICATIONS. • ALL MERCOID CONTROLS ARE EQUIPPED WITH SEALED MERCURY CONTACT SWITCHES TO INSURE PERFECT ELECTRICAL CONTACT UNDER ALL OPERATING CONDITIONS. • MERCOID CONTROLS ARE BUILT TO ENDURE. THEY WILL GIVE ACCURATE AND DEPENDABLE SERVICE OVER A LONG PERIOD OF YEARS.

THE MERCOID CORPORATION
MAIN OFFICE AND FACTORY LOCATED AT 4201 BELMONT AVE., CHICAGO
IT PAYS TO GET THE BEST

MERCOID THERMOSTAT TODAY

Type H Sensatherm

Time marches on with its process of refinement. ¶ The Mercoid Sensatherm is truly a product of modern achievement. ¶ In about half the size of the first thermostat, you will find a laboratory of unequalled scientific skill in construction and operation. ¶ A leader in the field now.

Congratulations to DOMESTIC ENGINEERING on its Golden Anniversary -and the best of luck for its future

New building of Mesher Supply Co., Portland, Ore. It is 100 ft. square

May Regional Meets

May Oil Burner Corporation, Baltimore, has recently completed a series of regional sales meetings designed to acquaint contractors and dealers with equipment features, advertising and promotional plans.

The first meeting was held August 23 in the Hotel Philadelphian, Philadelphia; the second on August 24 in the Hotel New Yorker, New York City, and the third on August 25 in the Kenmore Hotel, Boston.

The complete line of equipment was displayed and discussed. The following members of the company delivered addresses or led discussions: E. E. Yaggy, president; E. P. Hayes, vice president in charge of sales; C. R. Collins, assistant sales manager; A. Klotzman, vice president in charge of engineering; J. Gaertner, advertising and sales promotion manager; J. C. Hauf, Jr., director in charge of engineering department.

N. Y. Golf

The Plumbing and Heating Golf Assn. of New York held its fifth meet of the season at the Lakeville Club, Lakeville, L. I., on September 19. Twenty-five members attended. The following were prize winners: class A—A. G. Mohrman, E. O. Brady and Glenn B. Van Buren; class B—J. A. Edwards, E. S. Rising and W. M. Doncourt; class C—Edward Ryan, W. G. Davis and Carl Henzel.

Eastern Golf

R. A. Mohrman won the President's Trophy at the September 12 meet of the Eastern Trade Golf Assn., held at Echo Lake, Westfield, N. J. Cary Waters won the Vice President's Trophy, and J. M. High and George M. Scott class A and B Hinrichson Trophies.

Prize winners for the meet were C. S. Wood, R. G. Bookhout, Don O'Neil, J. B. Garfield, C. H. Armstrong, Ernest Williams, F. C. Stille, R. W. Myer, J. C. McDonald, George Allen, J. S. Weaver, I. S. Forde, W. L. Keplinger, Jr. and A. P. Keasbey.

Inventor

During the past month I. E. McCabe, chief engineer and chairman of the board of The Mercoid Corporation, Chicago, received his 100th patent from the United States Patent Office. This information was contained in a letter from L. J. Schanz, advertising manager of The Mercoid Corporation, congratulating DOMESTIC ENGINEERING on its 50th anniversary. Many of the patents deal with automatic heating products.

I. E. McCabe

UNIFLOW MFG. CO. • • ERIE, PA.

Don't take Chances . . .
TAKE ACME'S ALONG!
THE ACME MASTER KIT
ACME'S ENDURE WHERE OTHERS FAIL
8 SIZES
200 PIECES
Container is made of heavy 22 ga. steel. You'll find many uses for it!

ACME'S are available in: THE ACME MASTER KIT, containing 200 assorted washers (illustrated), the ACME Handipak with 100 assorted washers or 100 washers to the can in any of 8 popular sizes.

To be prepared for any emergency while out on the job, is the aim of every successful Master Plumber. That is why the "ACME" Master Kit has become such a favorite with plumbers everywhere. For, with the Master Kit you are prepared to give your customers PERMANENT relief from faucet troubles without waste of time. 8 different sized washers in separately indexed compartments are included in the Master Kit. Of characteristic "ACME" quality, these washers withstand the ravages of both hot and cold water, always form a perfect seat and allow a full waterway. Don't take chances . . . order the "ACME" Master Kit from your wholesaler today.

Lavelle Rubber Co.
424 N. WOOD ST. CHICAGO, ILL.

Speakman Golf

(*See photos, page* 110)

The Delaware Valley Trade Golf Assn. of Philadelphia held its last regularly scheduled meet of the season at the Concord Country Club, Concordville, Pa., on September 15. The host for the day was Speakman Co., Wilmington, Del., with Wm. A. Speakman, J. Fletcher Wright, Al Gemmill, James Fraser, C. C. Gerow, Jr., and Paul Davis, all of Speakman, in charge.

An exceptionally large crowd turned out and, with perfect weather and a course in great shape, some good scores were turned in.

Charles P. Hackett presided at a brief business session after dinner. A testimonial was presented to Mrs. Harry C. Speakman in honor of her late husband. Captain Scharnagl awarded prizes at the meeting.

Novel event of the day was a hole-in-one contest, with Jack Muend placing his ball closest to the cup—1 ft. 9. in. Dan Scharnagl and Ray Groff tied for second in this event.

Prize winners in the morning round were Jack Squires, Russ Knight, Ray Goff, Bob Savill and Ken Ford. W. A. Speakman, Harry DeLeon, Andy Scharnagl, A. A. Ahlff and J. P. Harper won afternoon round prizes. Guest prizes were taken by Jack Muend, W. G. Waters, H. F. Wageman, Paul Davis, Bill Sieg, J. Brunner and Jim Hatten, Jr.

Afternoon net scores:

W. A. Speakman	72	Chas. Hackett	79
Harry DeLeon	74	Chas. Haynes	80
Andy Scharnagl	74	E. L. MacWhorter	82
A. A. Ahlff	74	Chris Weber	82
J. P. Harper	74	John Radice	82
Bill Hale	74	Merril Blankin	84
Jake Flemming	75	H. Held	85
Harold Peace	75	Ken Ford	86
Russ Knight	75	Harry Officer	87
Jim Fraser	76	Robert Burns, Sr.	88
Jack Carr	77	Arch Maddock	90
Al Gemmill	78	Bob Savill	90
B. H. Deacon	78	Cliff Lord	94
Ray Groff	79		

Guest gross scores:

C. F. Haist	108	Dan Scharnagl	97
Frank La Baw	111	J. Brunner	101
Jas. Maston	104	Wm. Behrer	100
W. Graff	83	Joe Woods	97
H. Weldin	112	W. G. Robelen	103
E. W. Fleetwood	93	A. E. Dambley	98
C. L. MacBeth	105	H. F. Wageman	103
H. Escott	91	M. Smith	98
P. Davis	85	W. W. Seig	91
Don Coleman	91	J. Hatten, Jr.	93
W. J. Busser	107	J. Hatten, Sr.	111
W. G. Waters	90	J. LaRoche	116
R. J. Bulman	96	J. Mullins	100
Jack Muend	83	J. Booth	101

Memphis Meet

Two hundred heating contractors from Memphis and mid-South were guests of the Crane Co. Memphis branch, of which F. A. Duncan is manager, on Sept. 26 at a meeting held in the auditorium of the Service Bldg. of Light, Gas and Water Division. Merchandising and promotion programs were outlined. The visitors also had opportunity in the day to see the fine permanent exhibit which is maintained at the branch.

New Distributors

Sales Representatives, Appointments

The Mercoid Corporation, Chicago, has appointed R. E. Michel Company, Baltimore, a distributor.

Malleable Iron Fittings Company, Branford, Conn. has appointed Behrer-Nason Co. its exclusive distributor of oil burning products for the metropolitan area of New York and Long Island.

Hollaender Hanger Co., Cincinnati, has recently appointed Leon M. Hewitt, Goldsboro, N. C., its representative for Virginia, North Carolina and South Carolina.

Grant Wilson, Incorporated, Chicago, has become exclusive Middle-West distributors for **The Cheney Co.,** Philadelphia, according to an announcement by Grant V. Wilson, president of the Wilson company.

H. B. Sherman Manufacturing Co., Battle Creek, Mich., has announced the appointment of T. J. Crofton, New York City, to handle the lines formerly sold by the late Charles H. Reynolds. Mr. Reynolds died August 13. Mr. Crofton previously has been handling the company's electrical lines in the area.

Personals

James W. Duffy, who has been connected with Crane Co. in Chicago and Cleveland for more than 35 years, has resigned that association and has moved to Detroit to take charge of Edward W. Duffy & Company. This business, a wholesale firm, was established in 1924 by Edward W. Duffy, who died recently.

H. F. Horton, associated with the company since 1929 as salesman in the southern New England and New York State territory, has been appointed sales manager for General Fittings Co.

The Iowa Executives' Trade Practice Conference, Iowa Division, Central Western Credit Exchange met as guests of Mr. and Mrs. Fred W. Swanson at their lake home at Lochcroft, Echo Bay, Lake Okoboji, Iowa on August 25. Top picture (back row): O. R. Manners, F. W. Swanson, F. R. Monick, P. J. Frey, C. R. Chandler, W. J. Corcoran, E. L. Vennard, W. C. Yerger, W. E. McCollum, T. R. Brady, E. I. Leighton, C. W. Helstrom, A. W. Hadley; (front row): R. M. Dodds, D. R. Thomas, F. W. Swanson, Jr. Lower photos: Miss Mary Jane Swanson, Mrs. F. R. Monick, Mrs. F. W. Swanson, Jr., Mrs. E. I. Leighton, Mrs. W. J. Corcoran, Mrs. F. W. Swanson, Mrs. A. W. Hadley, Mrs. E. L. Vennard, Mrs. W. C. Yerger, the Swanson home

—Photos by courtesy of D. R. Thomas, manager, Central Western Credit Exchange, Minneapolis.

Edward P. Hayes, well known executive in the heating products manufacturing field, has joined May Oil Burner Corporation, Baltimore, as vice president in charge of sales.

Edward Groeniger, who has recently been associated with Wm. C. Groeniger, Inc., Columbus, Ohio as president, treasurer and engineer, has resigned to organize an engineering business. He will specialize in design of plumbing systems, fixtures, fittings and devices.

Kenneth G. Agnew and **Clifford T. Tomlinson,** formerly secretary and treasurer respectively of Manufacturers Promotional Service, Inc., New York, have announced their recent resignations from that corporation. Agnew & Tomlinson, 101 Park Ave., New York, which has been in business for many years, will continue to promote air valves, air filters and boiler compounds.

H. H. Simmons, advertising manager **Crane Co.,** has been promoted to manager of advertising and sales promotion, succeeding Russell G. Creviston, who assumes a new position, director of trade relations, according to an announcement by P. R. Mork, vice president.

In addition to directing advertising, Mr. Simmons will supervise the company's related sales services: sales promotion, catalogs, displays and exhibits, the two Crane magazines and publicity. Mr. Simmons had 15 years experience in advertising and merchandising a wide variety of industrial and building products before joining Crane Co. four years ago.

Mr. Creviston will fill the newly created position of director of trade relations. Mr. Creviston will develop certain phases of market research which offer opportunities for improving the company's service.

Mr. Creviston has been director of advertising and sales promotion for the past ten years. He was at one time general manager of the Plumbing and Heating Industries Bureau and he has just completed a two year term as president of the Producers' Council.

H. H. Simmons

Russell G. Creviston

W. O. Daniels has been appointed business manager of the Toledo, Ohio Assn. of Master Plumbers. He has opened a permanent office at Room 218, Secor Hotel.

F. J. Wilkey has been appointed manager of the Cleveland branch of Crane Co. He joined the company in 1929, because a salesman in 1934, and assistant manager of the Cleveland branch sixteen months ago.

BURKS

SUPER TURBINE PUMPS

WATER SYSTEMS

CONDENSATION RETURN UNITS

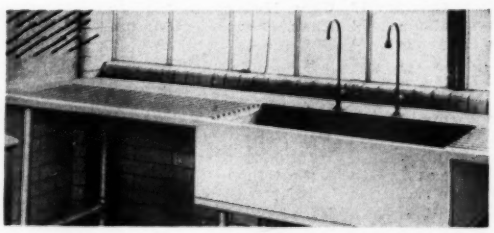
Only BURKS

GIVES ALL THESE FEATURES that INCREASE DEALERS' SALES and PROFITS

- **LIFE-LOK** Keeps Burks Pumps running like new many years longer
- **ONLY ONE MOVING PART** No unnecessary parts to cause breakdowns—expensive repairs
- **GREATER PUMPING CAPACITIES** Largest capacities per electricity consumed
- **LIFTS WATER 28 FEET** This exclusive feature of performance not even attempted by others
- **PROFIT** Built to last a lifetime. Less servicing —Larger net profit. More satisfied customers—goodwill
- **COMPLETE LINE** Full range of sizes, 240 to 1700 G.P.H. Capacities, complete systems and independent pumps
- **QUALITY AND PERFORMANCE** Burks continues to lead the industry in quality after setting the pace for 25 years

There's a Burks Jobber near you or Write Factory. No Obligation.

DECATUR PUMP COMPANY
DECATUR, ILLINOIS



SPECIAL SINKS TO FIT ANY SPACE

ALBERENE STONE BEST

Non-absorbing and non-staining, Alberene Stone is ideal for sinks and laundry trays. Tongue and groove joints with hidden bolts, permanently cemented, have the strength and tightness of one-piece units.

Alberene is acid-, heat-, and wear-resisting. It can be shaped, sawed and fabricated in any desired shape or form.

Order Alberene Sinks of any dimensions to fill any desired spaces. Shipment will be made within one week from the receipt of order and complete details as to sizes, openings, etc.

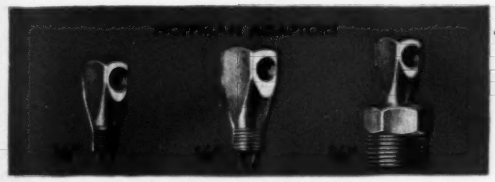
Write for special price on the Alberene 44" Laundry Tray, plain and in Duco colors.

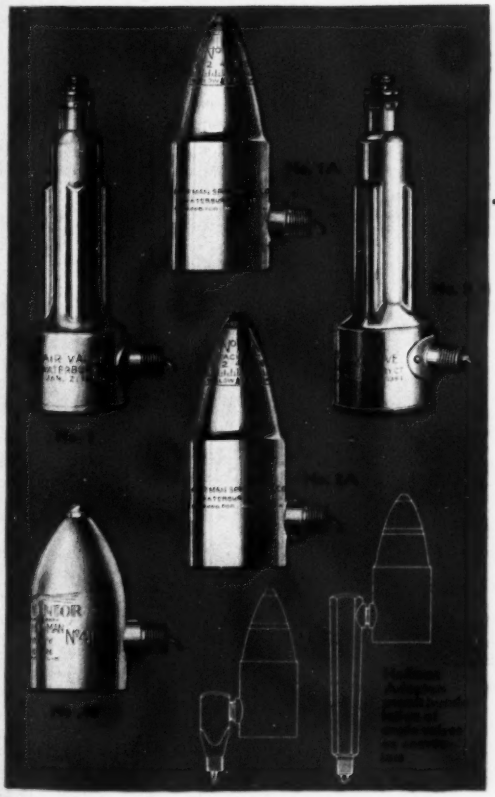
Good Housekeeping Institute

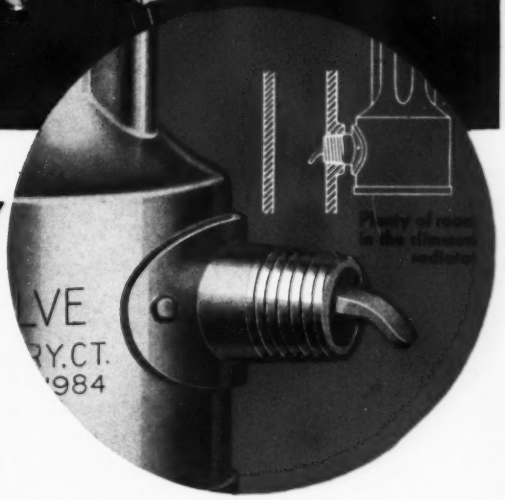
ALBERENE STONE CORP. OF VIRGINIA
419 Fourth Avenue, New York, N. Y.
Quarries and Mills at Schuyler, Va.

ALBERENE STONE SINKS • TRAYS

THE VALVE THAT *Fits them all!*







New "SHORT-TONGUE" SIPHON . . . plus HOFFMAN ADAPTORS enable 5 Hoffman Valves to do the work of 20

Venting valves with long siphon tubes are obsolete . . . made so by the modern thin-tube radiator! So Hoffman engineers conceived and perfected the "short-tongue" siphon—fitting any type of radiator, old-style or new—providing siphonic action with a "tongue" which projects only ¼" beyond the valve connection. Ending the need for bending or breaking siphon tubes to permit installation in modern radiators.

Straight Shank Valve patterns eliminated!

Modern convectors made necessary a straight shank valve . . . thereby increasing the number of valve patterns required to meet all venting needs. To remedy this condition, Hoffman created the Adaptor—a device which permits angle pattern valves to be installed on convector radiators. Today, *five* Hoffman Valves with suitable Adaptors will do the work which formerly required *twenty.* Only Hoffman Valves can be used with Hoffman Adaptors.

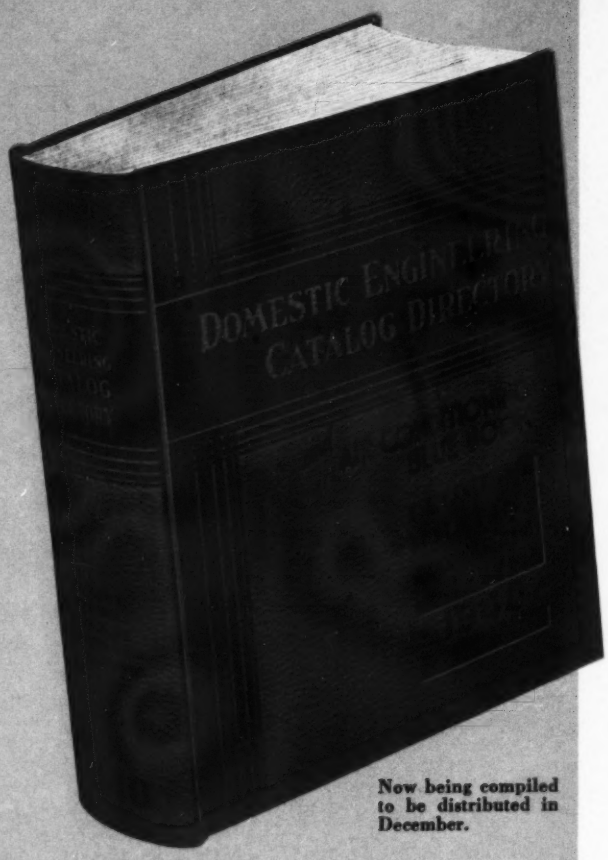
Send for the new Hoffman Venting Valve Catalog at once. It will give you full information on Hoffman's latest contribution to better heating.

Hoffman Specialties are sold everywhere by leading wholesalers of Heating and Plumbing equipment.

HOFFMAN SPECIALTY CO., INC.

Dept. RX-10, Waterbury, Conn.

SEND FOR THIS NEW CATALOGUE!



Now being compiled to be distributed in December.

The 1940 edition of

DOMESTIC ENGINEERING CATALOG DIRECTORY . . .

. . . is now being compiled to offer *Buying* and *Specifying Information* on . . .

- Plumbing
- Heating
- Water Systems
- Plumbers' Specials
- Heating Specialties
- Stokers, Oil Burners
- Air Conditioning
- Humidifying
- Refrigerating
- Insulating
- Compressors
- Fans, Blowers

What the 1940 edition will contain:

1 MANUFACTURERS' CATALOG SECTION
. . . will offer up-to-the-minute descriptive and illustrative purchasing and specifying information on manufactured products in the Industry.

2 TABLES AND RULES SECTION
. . . will contain condensed specifying data in the form of standard rules, tables, charts, and layout diagrams on Plumbing, Heating, Automatic Heating and Air Conditioning.

3 CLASSIFIED DIRECTORY SECTION
. . . will contain buying information of virtually every known product in the Plumbing, Heating, Automatic Heating and Air Conditioning Industry.

4 TRADE NAME SECTION
. . . is now being compiled separately and will show the Trade Names . . . the item to which they apply . . . and the Manufacturers' name and address.

5 NAME AND ADDRESS SECTION
. . . will include the Names and Addresses of all known Manufacturers of Plumbing, Heating, Automatic Heating and Air Conditioning items.

5 SALES SERVICES IN ONE BOOK 1

DOMESTIC ENGINEERING CATALOG DIRECTORY . . . makes Products

Easy to Buy and Specify

. . . in the Plumbing, Heating, Automatic Heating and Air Conditioning Industry.

How? By placing catalog material in the hands of the top-grade Buyers and Specifying Engineers of Plumbing, Heating, Automatic Heating, Air Conditioning and related equipment.

Catalog material bound in DOMESTIC ENGINEERING CATALOG DIRECTORY positively presents products to potential prospects in a concise and economical manner. The power of persuasion to purchase or specify products is only present when catalog material is EASY to FIND and Products "EASY to BUY and SPECIFY." Manufacturers are assured that DOMESTIC ENGINEERING CATALOG DIRECTORY is working for them 365 days a year.

DOMESTIC ENGINEERING CATALOG DIRECTORY is an able assistant to promotional activities and admirably strengthens ANY Sales Structure. It works in the absence of salesmen and is often the ONLY tangible contact with a prospective customer WHEN AN ORDER OR SPECIFICATION IS BEING WRITTEN.

DOMESTIC ENGINEERING CATALOG DIRECTORY is compiled in the Fall of each year and distributed in December . . . an ideal time to which the Industry has become accustomed. Its time of distribution is based on modern, scientific methods, field contact with the Buyers and Specifiers, coupled with 18 years of research progress.

Carries the Goodwill and Prestige of a Specialized Group of Potential Customers

It's BUYER-TESTED

DOMESTIC ENGINEERING COMPANY
1900 Prairie Avenue Chicago, Illinois

It's INDUSTRY-ACCEPTED

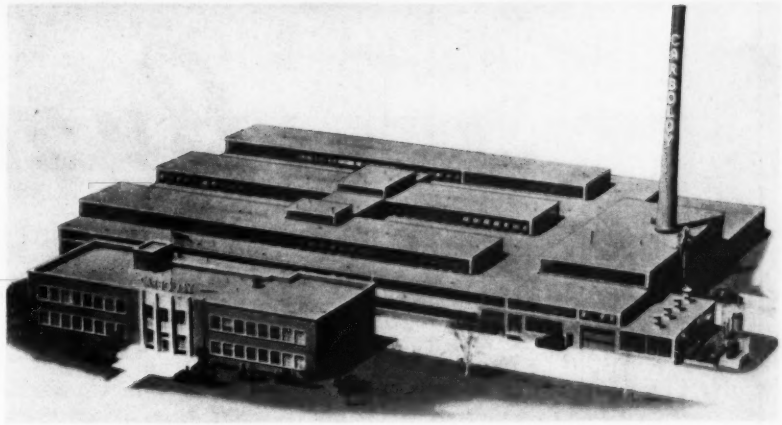
Business Changes
and New Incorporations

National Engineering Products, Inc., Washington, D. C., has moved its offices to the Commerce & Savings Bank Bldg. The factory remains at 4100 Georgia Ave. According to Pres. C. Gibson Ford, the move will allow additional space for both office and factory.

Carboloy Company, Inc., a subsidiary of General Electric Co., has formally opened its new $750,000 plant and general offices in Detroit. The new plant, which embraces a total area of 121,750 sq. ft., will combine all the manufacturing facilities formerly divided among factories in Cleveland, Detroit and Stamford, Conn.

Equipment now installed and planned for the immediate future will be capable of producing ten times the volume currently produced. The two-story administration building, having an area of 35,556 sq. ft., will house all offices.

The factory, which is connected to the rear of the administration building, is a one-story monitor type structure. Facilities for the convenience of employees consist of cooled drinking fountains, large, well-lighted and well-equipped washrooms, and inside and outside recreational facilities.



Recently completed plant of Carboloy, Inc., in Detroit

Food Machinery Corporation has announced, from its Los Angeles offices, the purchase of Kimball-Krogh Pump Company, a division of the Victor Equipment Company. The Kimball-Krogh company will be merged into another pump manufacturing division of the Food Machinery Corporation.

Vernon Edler, vice president of Food Machinery Corporation, has stated that the merger will enable his company to offer an entirely new line in addition to the products now manufactured. The purchase was regarded as another step in the expansionary plans of the firm. This was initiated earlier in the year by the purchase of additional property and the erection of a large modern factory. At the same time improved manufacturing processes to handle increased production and a large hydraulics test laboratory were incorporated in the new plant.

F. R. Dengel Co., Milwaukee wholesaler, will erect a new office and warehouse building adjacent to the company's present quarters.

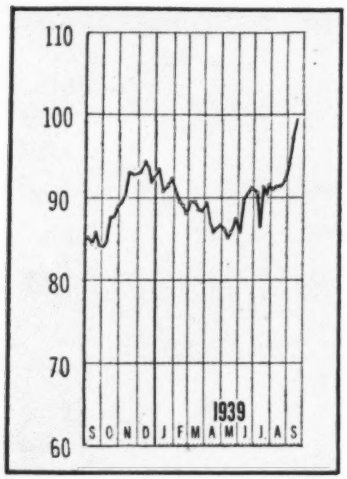
KENNEDY
Radiator Valves

DESIGNED in accordance with standard roughing-in dimensions and include every desirable type—angle, straightway, and offset corner, with or without unions, right or left-hand and with wheel or lock shield and key on operating stem. Kennedy Valves, Malleable Iron and Brass Fittings help to speed up pipe fitting jobs by their uniform excellence and ease of connecting up to pipe lines.

You can obtain Kennedy Products from your local supply house.

The Kennedy Valve Mfg. Co.
Elmira, N. Y.

Branches and Warehouses in Principal Cities



For the week ending September 16, the New York Times index of general business showed a sharp rise, approaching the 100 per cent base mark

Business

Industry Continues Gain **General Business Better**

Summary

• While in August war clouds were gathering over Europe, plumbing and heating wholesalers' sales in this country advanced 17.2 per cent over August last year. This represents the highest gain over the corresponding month of 1938 yet recorded in 1939, and a greater than seasonal gain over July of this year.

• The one immediate effect of the outbreak of war about which there can be no difference of opinion is the rising price level. Commodity prices, in general, have shown increases, while for the plumbing and heating industry in particular, gains reported in most sections averaged 10 per cent and were applicable to metals and metal products.

• There is a division of opinion among plumbing and heating wholesalers as to the probable effect of war on this industry. On the one hand, a few wholesalers feel that present increases are entirely due to buyers taking advantage of present prices in anticipation of rises, and that eventually rising prices will kill the market. Other wholesalers point to the fact that prices of other products, as well as plumbing and heating equipment, are increasing and that in the long run it will mean higher wages and opportunity for greater sales.

• It is significant to note that in commenting on the prospects for September business, as compared to the corresponding month of last year, 62 per cent expect an inprovement, while for August only 46 per cent expected a gain.

17 Per Cent Rise

• *August wholesale business far exceeds last year*

One hundred and five key plumbing and heating wholesalers reporting for August showed an average gain of 17.21 per cent over August last year. For the aggregate first eight months, these 105 firms reported an average gain of 10.50 per cent over the like period of 1938.

Sixty-five of these wholesalers expect that business for September will be better than in September of last year, 21 expect it to be about the same, four expect a decline, and fifteen did not comment.

New Hampshire: "Expect September to show improvement because of war."

Rhode Island: "Trade prices advancing"—"There is a substantial increase in textile orders in this section due to the war, and the new wage scale now in effect."

New York (South Central): "Slight flurry in buying to build up inventories in view of advancing prices."

New York City: "Prices advanced."

New Jersey: "Not much jobbing work, mostly large building construction here"—"All trade prices advanced 5 per cent to 10 per cent due to war conditions"—"Business already handled and back-log of orders much greater than last year at this time."

Pennsylvania (Central): "Our business has picked up considerably due to

Key Wholesalers

	% of change August, 1939, compared to August, 1938	% of change first 8 mos. 1939, compared to first 8 mos., 1938	Better	Same	Worse	No Comment	Total Reports
New England	+12.47	+ 3.87	8			1	9
Middle Atlantic	+16.51	+11.40	18	12	2	7	39
South Atlantic	+12.64	+13.33	8	2	0	1	11
East North Central	+26.80	+14.13	18	2	1	2	23
East South Central	+ 8.75	+ 3.51	2	0	0	0	2
West North Central	+16.53	+ 8.12	6	3	0	4	13
West South Central	— 3.44	+ 8.89	1	1	0	0	2
Mountain			1				1
Pacific	+6.06	+ 4.51	3	1	1		5
United States	+17.21	+10.50	65	21	4	15	105

Current Market Data Service*

Plumbing and Heating Wholesaler Sales	July '39	August '38
(Average per cent of change over 1938 business)	15.73%	17.21%
Plumbing and Heating Wholesalers' Stocks		
(Average inventory at cost reported by 79 firms to the Department of Commerce)	June '39 $53,634	July '39 $50,760
Wholesale Prices		
Bureau of Labor Statistics—1926 = 100	June '39	July '39
Plumbing and Heating	79.3	79.3
Building Materials	89.5	89.7

*This table summarizes the data required to bring up-to-date the charts contained in "Plumbing and Heating Market Possibilities by States." For further information regarding this service write to Marketing and Research Bureau, 1900 Prairie Avenue, Chicago, Illinois.

heating season and price advances"—"Expect September to show improvement because of war."

Pennsylvania (Southeastern): "Slight increase in trade prices of some lines"—"More activity in building trades."

West Virginia: "First 20 days of September ahead of entire September last year"—"Most trade prices up."

North Carolina: "Taking advantage of present prices in anticipation of rises."

Maryland: "Better market prices and quick closing of some outstanding contracts give reason to believe that September business will be an improvement over last year."

Look for War Effects

Ohio: "Expect effects of war to improve September business"—"Average price gain 10 per cent"—"Increased building activity"—"The year should be about the same as 1938 in volume"—"More industrial building"—"Business increasing because of war."—"Many hold orders for future delivery on file. An advancing sellers' market."

Illinois: "More building now than for several years."

Minnesota: "Increased prices for farm products promise increase for September over September last year."

Iowa: "Business seems to be going like a house afire."

Shipments of Plumbing and Heating Equipment

	July, 1939	July, 1938	Total 7 Mos., 1939	Per cent of Change 7 Mos., 1939, over 7 Mos., 1938
Steel Boilers				
Number of Units	1,033	894	6,764	+41.77
Domestic Water Systems				
Number of Units	19,029	15,240	124,977	+21.70
Plumbing Brass				
Thousands of Pieces	1,731	1,496	11,700	+26.40
Mechanical Stokers				
Classes 1, 2 and 3 for domestic, apartment and small commercial use	9,246	8,825	34,737	+10.08
Oil Burners				
Number of Units	17,337	10,689	86,975	+55.23
Range Boilers				
Number of Units	50,596	52,251	422,024	— 4.37
Cast Iron Boilers				
Thousands of Pounds	18,556	19,856	94,136	+ 0.72
Radiation				
Thousands of Sq. Ft.	5,280	5,219	26,971	+ 0.08

Metal Prices

New Metal Market:
Domestic—$12.00.
Foreign—None.

Electrolytic Copper—Delivered, Middle West, $12.12½.

Lead—St. Louis, $5.35 cwt.; New York, $5.50 cwt.

Ingot—

Zinc—St. Louis, $6.25 cwt.

Tin—New York, $67.50 cwt.

Brass Ingot—CL, $13.50; LCL Delivered, $13.75.

Yellow Ingot—CL, $10.75; LCL Delivered, $11.00.

Scrap Metal (Dealer's Buying Prices)

Composition and steam brass—$8.00 cwt.

Strictly Heavy Yellow Brass Scrap, cast, $5.25 cwt.

Mixed, strictly cocks and faucets, $5.50 cwt. (Including ball cocks, etc.)

Light brass, tubes, pipe, old sheets, etc., $4.75 cwt.

Old scrap lead pipe, etc., $4.25 cwt.

Copper, sheathing and roofing, free of nails, $7.25 cwt.

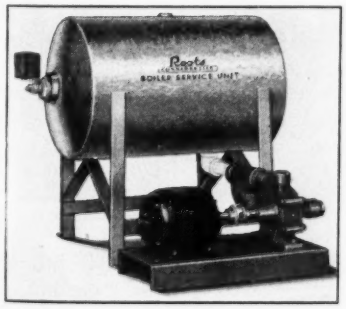
Copper, boilers, tanks and other light materials, $6.75 cwt.

Soldered joints, $8.50 cwt. (F. O. B. Chicago.)

Block tin, $50.00 cwt. (F. O. B. Chicago, $50.50.)

IT'S ALWAYS
PROFIT TIME!
WITH
Roots CONNERSVILLE
BOILER SERVICE UNITS

Check in on this easier selling, higher profit line NOW! Engineered right . . . priced right. A suitable unit for every type installation.



Condensate Return for Gravity Systems

Condensate Return and Boiler Make-up

For Boilers up to 500 H.P. Pressures up to 125 lbs.

Ask your jobber or write us for catalog and prices.

ROOTS-CONNERSVILLE BLOWER CORP.
CONNERSVILLE INDIANA
Pump Builders for over Fifty Years

GOOD SINKS DESERVE
Schaible
ONE-PIECE CAST BRASS BASKET STRAINERS

No. 103

The vital spot in the kitchen sink is the strainer. To insure perfect sink operation, use the Schaible No. 103 lifetime guaranteed basket strainer. Entire basket is solid one-piece brass casting. No moving parts to break or wear out.

FREE To plumbers the Jiffy strainer wrench. See your jobber, or write us.

SOLD THRU JOBBERS

Schaible FOUNDRY and BRASS WORKS CO.
1088 Summer St.
Cincinnati, Ohio

For Your Protection ON EVERY JOB

Plumbing and heating installations can take a lot more time and labor than you figured if you have trouble with piping materials. Call-backs, to repair leaky joints, to replace valves that fail can cost you real money.

Don't risk this danger to your profits—enjoy the protection that comes with valves and fittings of proved quality. Choose Crane valves whose goodness and dependability are assured right in the laboratory where they are engineered. Choose Crane fittings of sound design and sturdy quality—whose chamfered ends, clean and deep-cut tapping and true alignment mean speedier, more workmanlike make-up that stays tight.

Play safe!—stock quality piping materials only. Cheap items always prove costly in the long run. Insist on Crane-Quality on every job—in the valves and fittings as well as fixtures. Then you're protected and your customer satisfied.

CRANE

CRANE CO. · GENERAL OFFICES: 836 S. MICHIGAN AVE. · CHICAGO

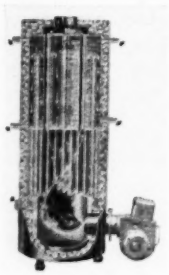
VALVES • FITTINGS • PIPE • PLUMBING • HEATING • PUMPS

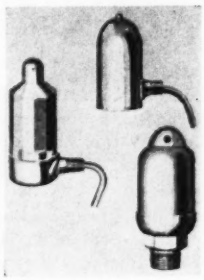
NATION-WIDE SERVICE THROUGH BRANCHES, WHOLESALERS, PLUMBING AND HEATING CONTRACTORS

PRODUCTS *for* DEALERS

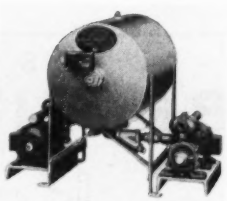
Valve Line

Shown in the illustration are three members of a recently re-engineered line of valves. They have been completely redesigned, the manufacturer points out, to provide for each type of installation a superior means of venting radiators, convectors, mains, pipe coils, etc. The complete line consists of fourteen valves and a special balancer for automatically-fired vacuum systems. Most of the valves have been completely redesigned inside for improved performance and streamlined outside. They are announced by The Dole Valve Company, 1901-1941 Carroll Ave., Chicago.





A water heater or small boiler is shown directly above and to the right of it a recently announced line of valves. At the right is a new condensate return unit



Water Heater and Small Boiler

Made in four sizes is the recently announced water heater and small home heating boiler shown in the illustration. An outstanding construction feature of the boiler is the alternate short and long tubes described as causing a percolating action, thus speeding up water circulation and preventing scale accumulation. It can be had as a completely packaged unit with all accessories, including an indirect water heater. Manufacturer points out that even when the unit is used as a boiler, domestic water may be drawn directly from the heating system provided non-rusting or non-corroding piping and radiation is used. Announced by Aldrich Co., Peoria, Ill.

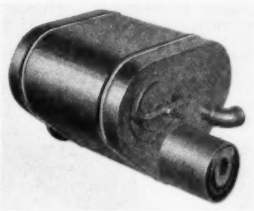
Condensate Return Unit

A new duplex condensate return unit has just been announced. This unit provides automatic facilities for handling occasional peak loads without the installation of complete duplicate units, according to the announcement. Further, automatic controls may be so set up that the units will operate alternately on single stage, thus tending to prolong the life of the motors and pumps. When the load reaches the critical point the second unit

cuts in and remains in operation as long as the load remains above that point. The unit will handle condensate return to boilers up to 500 hp. It is announced by Roots-Connersville Blower Corp., Connersville, Ind.

Gas Burner

A gas power burner with electric ignition has just been announced. It is shown in the illustration. An outstanding feature of the burner is referred to by the manufacturer as being its completely automatic operation. An adjustable orifice permits the regulation of gas input which in turn results in a wide range of capacities with only two models. Installation is described as simple. It is announced by National Machine Works, 122 S. Michigan Ave., Chicago.

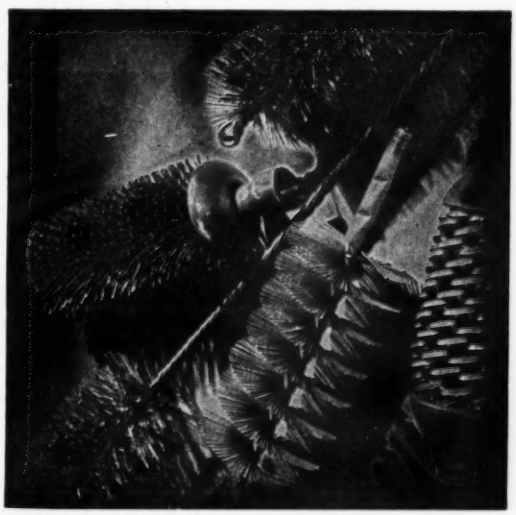


Above, Gas Burner
Right, Unit Heater Control

Unit Heater Control

Individual automatic control of unit heaters is the purpose of a recently announced device shown in the illustration. It is built into the unit heaters manufactured

Made for Long Rugged Service



Boiler Tube Cleaners, Flue Brushes, Wire Heater Brushes, Handy Cleaner Brushes, Fire Brooms, Track Brooms.

Tempered Steel
The Worcester line is complete.
Catalog gladly sent upon request.

WORCESTER BRUSH and SCRAPER CO.
10 AUSTIN STREET WORCESTER, MASS

PUT THEM IN—AND WATCH THEM MOVE!

GARDNER-DENVER AIR-COOLED COMPRESSORS

Things are moving pretty fast in this old world of ours—and Gardner-Denver air-cooled compressors are right in keeping with the times. They sell faster, and build profits quicker for distributors. They have the quality that makes them stand out—the quality that is evident in every detail of construction and design—in such features as Timken tapered adjustable roller, mirror-finished main bearings in Gardner-Denver Vertical V-type Compressors—in cylinders that are carefully bored, honed and machined—in larger cooling fins that assure the dependability on which customers depend.

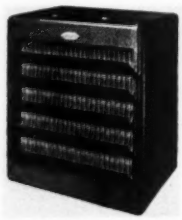
You can depend on Gardner-Denver quality to step up the sale of Gardner-Denver air-cooled compressors—compressors for starting Diesel, gas and oil engines . . . for paint spraying and fire insulation . . . for filling stations . . . for a multitude of industrial applications within their capacity range. And behind you, on every sale you make, stands the Gardner-Denver fair distributor policy—you get real co-operation. Learn all the facts about the Gardner-Denver complete, air-cooled compressor line—and how it can bring you more sales and bigger profits. Get full facts—write us today for full information. Gardner-Denver Company, Quincy, Illinois.

GARDNER-DENVER 80th ANNIVERSARY YEAR

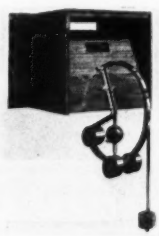
by this company but also may easily be added to any existing unit heater, according to the announcement. No special wiring is needed, it is pointed out, as it merely requires to be tied into the line at the heater itself. The heart of the device is described as a bulb-type thermostat containing a solid liquid charge, mounted within the heater housing. The control is announced by Grinnell Co., Inc., Providence, R. I.

New Unit Heater

An additional model, having 75 e.d.r. capacity, has recently been added to this manufacturer's line. The addition of this model gives a complete line of 25 closely graduated sizes with 50 and 100 sq. ft. e.d.r. between various sizes, according to a recent announcement. This range of sizes is described as providing a perfect fit for the wide range of load conditions encountered in many commercial and industrial applications. The new unit heater is announced by Fedders Manufacturing Company, Buffalo, N. Y.

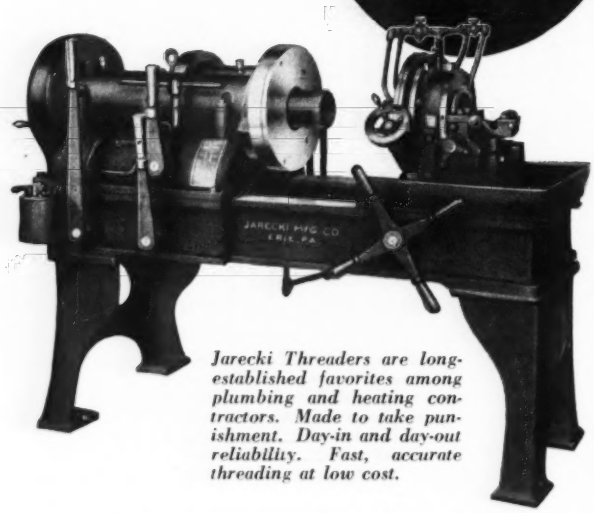


Unit Heater



Draft Adjuster

CUT YOUR THREADING COSTS WITH THE Time-tested JARECKI PIPE THREADER



Jarecki Threaders are long-established favorites among plumbing and heating contractors. Made to take punishment. Day-in and day-out reliability. Fast, accurate threading at low cost.

● Let the experience of hundreds of leading companies guide you to a new standard of economy and dependability in pipe threading machines. No machine at any price has a more impressive record of service. . . . Distributors in principal cities.

●

JARECKI MFG. CO., ERIE, PA.

"Finger Tip" CONTROL

No. 400 RADIATOR AIR VALVE

Fast Venting . . . "Finger Tip" Control . . . No Tools Needed to Adjust . . . Visible Dial . . . Ten Venting Degrees . . . Automatic . . . Smartly Designed . . . Guaranteed Performance

Write for Catalog of Complete Line — Air and Vacuum Valves

Order from your Wholesaler.

The M. S. LITTLE MANUFACTURING COMPANY
-- HARTFORD, CONN., U. S. A. --

Draft Adjuster

A newly announced draft adjuster is shown in the illustration on page 132. It is described as a stock model, made in four different sizes. It is operated entirely by the differential pressure between atmosphere and stack. A set of vertically suspended weights exert a constant force at a constant leverage against the movement of the door in the control, regardless of its position in its arc of movement. The adjuster is announced by The Preferred Utilities Manufacturing Corp., 33 West 60 St., New York City.

Boiler-Burner Unit

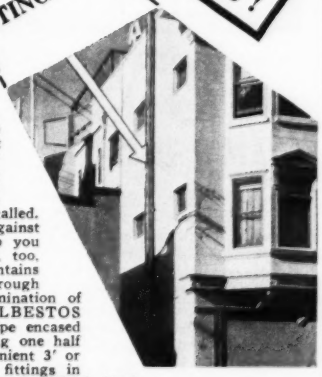
A packaged, welded steel, home heat generator has just been announced. The exceedingly good heat transfer obtained from the unit according to the manufacturer is derived from the method of firing. The oil is burned inside a central boiler tube wth a rapidly whirling motion which forms a cylinder of fire with no impingement on the boiler tubes. Hot gases continue this whirling motion through a multiple-tube return which is described as scrubbing out the last bit of useful heat. It is announced by The Bethlehem Foundry & Machine Co., Bethlehem, Pa.

Oil Fired Water Heater

Illustrated on the next page is a new oil-fired water heater. It is available to oil burner manufacturers and to plumbing and heating contractor-dealers without

An EXTRA MARGIN of Safety ON YOUR GAS VENTING JOBS

. . . AND AN EXTRA MARGIN OF Profit FOR YOU!



●To make the gas equipment you install absolutely safe is your first obligation to your customers. Give them the best in gas venting by using METALBESTOS whenever a gas vent or flue is to be installed. The extra margin of protection against hazards to life and health will keep you constantly in good standing. Then, too, its positive venting attains and maintains top performance of the gas unit through better draft conditions and the elimination of condensation in vent or flue. METALBESTOS is composed of a pure aluminum pipe encased in a galvanized steel casing, allowing one half inch air space between pipes. Convenient 3' or 10' lengths and a complete line of fittings in round or oval shapes make METALBESTOS ideal for either concealed or exposed jobs. Time and labor saved on installation and a better product at the right price give you an extra margin of profit. For safety's sake, install METALBESTOS on all your gas venting jobs. Consult your wholesaler. Write us for detailed literature.

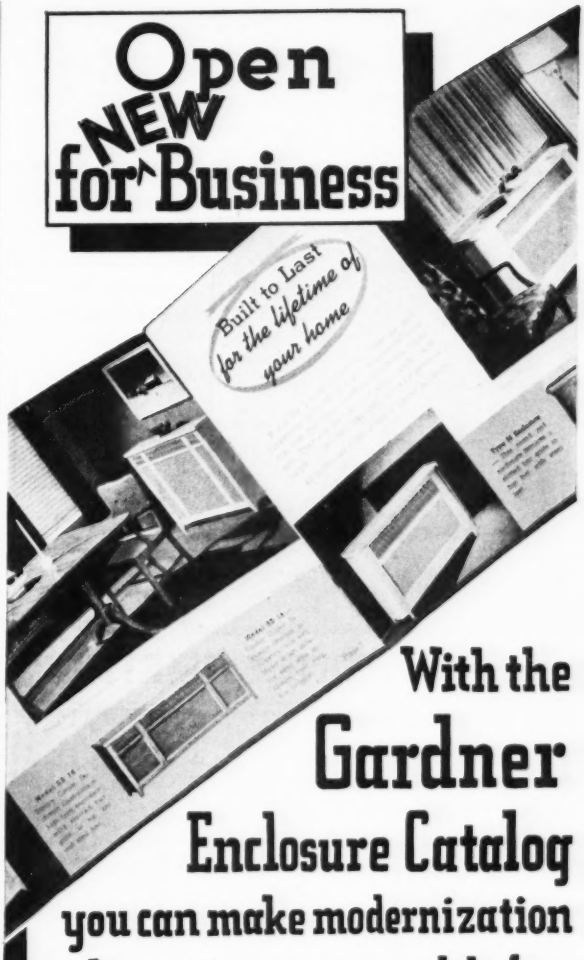
METAL BESTOS

TRADE MARK

WILLIAMS-WALLACE CO.
160 HOOPER ST. SAN FRANCISCO, CALIF.

METALBESTOS
NON CORROSIVE – SAFE – EFFICIENT – EASY TO INSTALL
The PERFECT Gas Vent and Flue Pipe

Open NEW for Business



With the Gardner Enclosure Catalog you can make modernization sales you've never made before

--- and get well paid for your work . . . .

Alert plumbers, everywhere, are cashing in on *low-priced* Gardner enclosures to increase their share of modernization contracts. The big Gardner line gets interest and buying action from home-owners because it provides every feature of attractive modern enclosures at a cost of from one-half to two-thirds less than prices you're accustomed to thinking of.

Profit Opportunity

Specializing in enclosure construction since 1928, Gardner has organized an efficient, modern shop to turn out life-time custom work at mass production prices. Gardner policies safe-guard and protect you — back up everything you do with a margin big enough to leave something to put away in the sock.

Complete Co-operation

Over 12,000 Gardner installations have been made by master plumbers who have a nose for scenting more business — and a knack for getting it. Send back the coupon today for your copy of the colorful Gardner catalog — a beautiful and complete show book for customers. You'll also get price sheets and discount information that will enable you to go out and add to your sales and profits. You order Gardner enclosures from your jobber.

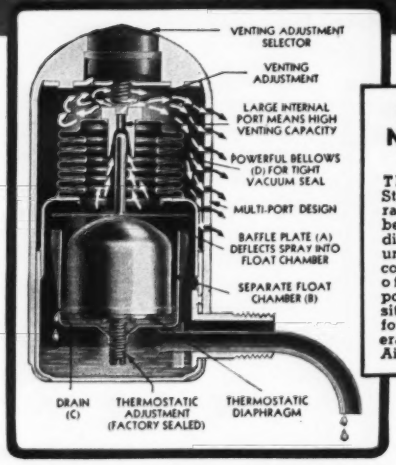
Gardner Manufacturing Co.
Horicon, Wis.

Gardner Mfg. Co.
Horicon, Wisconsin
Please send me at once, and without obligation, your new Enclosure catalog, with complete information on your line.

Name .....
Address ..... State.....
City .....

It's easy to talk about revolutionizing air valves

BUT—


VENTING ADJUSTMENT SELECTOR
VENTING ADJUSTMENT
LARGE INTERNAL PORT MEANS HIGH VENTING CAPACITY
POWERFUL BELLOWS (D) FOR TIGHT VACUUM SEAL
MULTI-PORT DESIGN
BAFFLE PLATE (A) DEFLECTS SPRAY INTO FLOAT CHAMBER
SEPARATE FLOAT CHAMBER (B)
DRAIN (C)
THERMOSTATIC ADJUSTMENT (FACTORY SEALED)
THERMOSTATIC DIAPHRAGM

KNOW THE NEW MARSH LINE

This new No. 2 Streamliner incorporates design never before found in a radiator air and vacuum valve. Ask for a complete description of the features pointed out opposite. They are also found in the moderately priced Marsh Air Valves.

Marsh has DONE SOMETHING about it!

IT is easy to say that an air valve is silent, won't spit or spurt, won't do this and that, *but* —

Marsh design has today dug down to the seat of these faults and *cleaned them out.*

On the job — *your* job — today's line of Marsh Valves will prove that they are:

1 First to give big air elimination capacity without hissing — and we mean *without* hissing.

2 First to stop spitting and spurting under the two important conditions that have hitherto proved the stumbling blocks in air valve design (fully described in Marsh literature).

3 First to achieve an ideal balancing of every factor that enters into air valve performance sharp distinction between air and steam temperature, big venting capacity without loss of operating pressure, tighter vacuum seal in vacuum types, and countless other refinements.

4 First to make these greater features available, not only in large valves but also in the moderately priced Marsh Valves.

Write for new price sheet

The new Marsh line has been given the most usable price sheet and condensed catalog covering air valves and venting devices ever published. *Write for it today.*

● No. 2 Air and Vacuum Valve and No. 1 Automatic Air Valve. Adjustable and non-adjustable vent as desired.

● A remarkable value in an adjustable vent, automatic air valve.

● Most of the new Marsh features in a low priced valve.

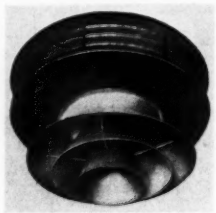
MARSH
RADIATOR AIR VALVES

JAS. P. MARSH CORPORATION
2051 Southport Ave., Chicago, Ill.

Manufacturers of quality air valves, venting devices, gauges, traps, valves and thermometers since 1865

Your Jobber Stocks Them

either oil burner or controls, these to be furnished and installed by the contractor, manufacturer or dealer. The unit's storage tank is of rust-proof metal with multiple copper integral flues designed for rapid and efficient heat transfer. Another feature is its heavily insulated cast refractory combustion chamber. It is available in 25, 35, 60 and 80 gal. capacities. It is announced by Gerstein & Cooper Co., 1-3 W. Third St., So. Boston, Mass.



Left, Unit Heater With Air Distributor

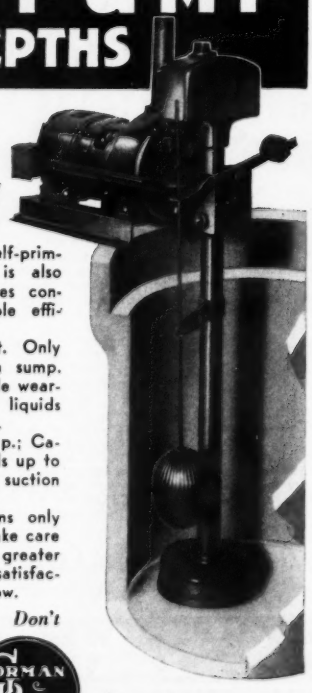
Right, New Water Heater

Unit Heater Air Distribution

A new unit heater advance has just been announced. The manufacturer has incorporated its four-blade propeller unit heater and a directional flow device thus producing a new unit heater for use in stores, factories, and other places where evenly distributed heat is an advantage. It is felt, by the manufacturer, that such a unit is extremely applicable for industrial plants and textile mills where low velocity air currents, which are dustless, are essential. This new unit heater combination is announced by The Trane Co., LaCrosse, Wisc.

ONE PUMP for ALL DEPTHS

~That's the **G-R SUMP PUMP!**



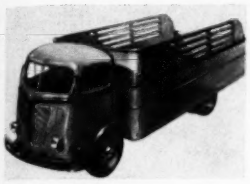
New in principle, this G & R self-priming centrifugal sump pump is also amazing in performance. Gives continuous service with remarkable efficiency—quiet and trouble-free.
Place on floor or wall bracket. Only suction pipe is submerged in sump. Only the impeller and renewable wearing plate are subjected to liquids pumped. No bearings in pump.
Two sizes—¼ h. p. and ½ h. p.; Capacity up to 4200 G.P.H.; heads up to 40 ft. Guaranteed self-priming suction lifts 10 and 15 ft.
To you GORMAN-RUPP means only one pump to carry in stock to take care of all needs. It also means greater profits and complete customer satisfaction. The price is surprisingly low.

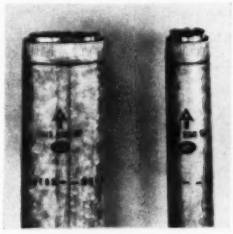
Exclusive territories open. Don't delay or you'll miss this valuable franchise.

The GORMAN-RUPP CO MANSFIELD, OHIO

New Heavy Truck

A new heavy duty cab-over-engine truck has just been announced and is shown in the illustration. For use as either a straight truck or as a truck-tractor, this new model has a capacity rating of 12,300 lb. including cab, body equipment, and pay load. They are described as especially useful for work in close quarters. They are by International Harvester Company, Chicago.





Above, Truck; Right, Vents

Gas Vent-Flue Pipe

The illustration shows a recently announced gas vent and flue pipe designed to carry off products of combustion from gas appliances and also to keep them hot to prevent condensation and resultant corrosion of the flue. The pipe is available in both round and oval shapes—either 3 or 10 ft. lengths, with diameters from 3 to 12 in. I. D. round pipe, and 3 to 6 in. oval pipe.

The inner pipe is of pure aluminum, the manufacturer points out, while the outer casing is of heavy galvanized sheet steel. The pipes are for use on all domestic gas appliances where exhaust temperatures do not exceed 600 deg. Fahr. It is by Williams-Wallace Co., 160 Hooper St., San Francisco.

RIDGID

The ONLY pipe wrench that guarantees you a repair-proof housing

UNCONDITIONAL GUARANTEE
If this Housing ever Breaks or Distorts we will replace it Free.
COPR. 1937 THE RIDGE TOOL CO. ELYRIA, O.

WORK can't break that housing—nor warp it. You waste no time or money on repairs. Adjusting nut can't bind, always spins easily in all sizes, 6" to 60". Powerful replaceable slip-proof chrome molybdenum jaws, handy pipe scale on hookjaw. Comfort grip I-beam alloy handle. No wonder millions prefer the RIDGID. For economy and easier work, buy it at your Supply House . . . today!

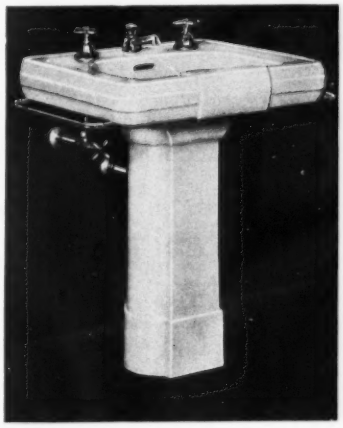
THE RIDGE TOOL CO. • ELYRIA, OHIO

Introducing

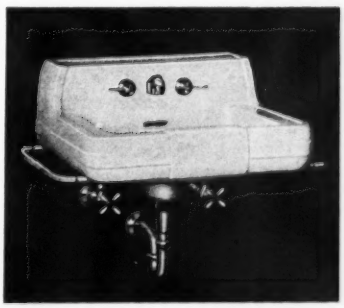
ABINGDON'S

New Curvline Design

Featuring the CURVLINE vitreous china pedestal lavatory that brings out the modern trend in architecture—the liberal use of curves.



G-124-FA



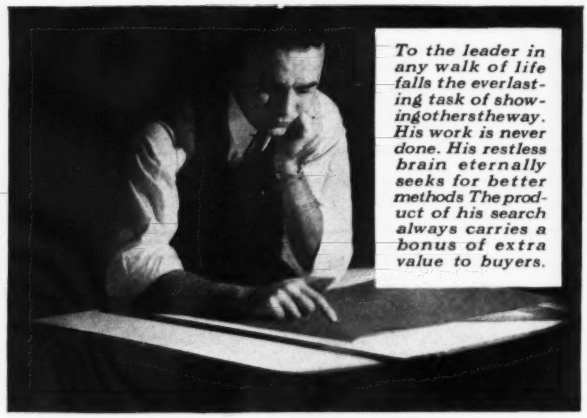
The CURVLINE shelf lavatory is in harmony with the flowing curves and straight lines of the CURVLINE Closet.

G-131-FV

The CURVLINE Siphon Jet Closet, our exclusive design, that brings charm and beauty to any bathroom and distinction to the home.

G-565

Abingdon Sanitary Mfg. Company
Abingdon, Illinois
Write for copy of new catalog "G".


To the leader in any walk of life falls the everlasting task of showingotherstheway. His work is never done. His restless brain eternally seeks for better methods The product of his search always carries a bonus of extra value to buyers.

THE PIONEER IS STILL THE LEADER IN ELECTRIC WATER HEATING

Edison made history with the introduction of the Electric Water Heater. It marked a new era for plumbers as well as the electrical industry.

After years of research, improving design, bettering style, instituting production refinements, Edison is still the outstanding leader in the field with these advantages:

1 Edison Electric Water Heaters are sold exclusively through wholesale plumbers. The roster of Edison's distributors is a blue book of the plumbing trade.

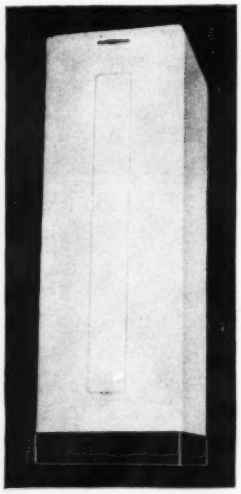
2 Electric Water Heating has grown in popularity by leaps and bounds. It is one of the fast-moving merchandise lines today.

3 Edison's volume production and advanced design provide new low prices which give Edison's distributors a distinct edge on competition.

4 Edison research continues to point the way to better merchandising, more advanced improvements, better service.

• • •

Write today for full details about Edison Electric Water Heaters and Sales Helps.



RECTANGULAR MODEL

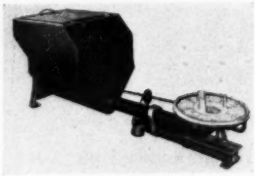
Edison has both the **RECTANGULAR** *and* **ROUND** *Type water heaters, Adaptable to kitchen, bathroom or basement installation.*

EDISON GENERAL ELECTRIC APPLIANCE CO., Inc.
5687 West Taylor Street, Chicago, Ill.

EDISON
AUTOMATIC ELECTRIC WATER HEATERS
Sold Exclusively Through Recognized Wholesale Plumbing Houses

Air Valve

The illustration shows a recently announced radiator air valve. Listed as features of this new unit are its fast venting, its "finger-tip" control, the fact that no tools are needed to adjust it, the visible adjusting dial, ten venting degrees. The valve is designed for one pipe steam radiation systems and is available in either straight shank or angle pattern for exposed radiation and concealed or basement drains, respectively. It is listed as having an improved design float and a removable adjustment feature for cleaning. It is announced by The M. S. Little Mfg. Co., Hartford, Conn.



Left, Stoker

Right, Valve

Bituminous Stoker

A natural draft ash removal bituminous stoker is shown in the illustration. It was announced recently. Pointed out by the manufacturer is the fact that the stoker will burn any soft coal. It has a 500-lb. hopper and a revolving grate which sifts the ashes into an ash hopper; a separate screw deposits the ash into a container. These features, according to the announcement, result in a stoker which requires a minimum of attention. Announced by Cornell Mfg. Corp., 2573 Winthrop Ave., Indianapolis.

SALES OPPORTUNITY for YOU

Now, with *no advance in price*, all Chicago Swinging-Spout Sink Faucets are regularly equipped with

SOFTFLO Faucet Spout End

You'll instantly see in this development an unusual sales opportunity; for it enables you to offer to your customers a super-faucet at regular prices—a faucet that will not splash; that insures more suds with less soap flakes; that makes flowing hard water feel like soft water; that clarifies cloudy water for drinking and mitigates odors such as chlorine. Order a sample for display.

Write for booklet describing the amazing effect of the Softflo upon running water.

THE CHICAGO FAUCET CO.
2712 N. Crawford Ave., Chicago
Your Jobber can supply Chicago Faucets

CHICAGO FAUCETS
Last as Long as the Building

New Information and Aids to Sales

Plumbing Fixtures

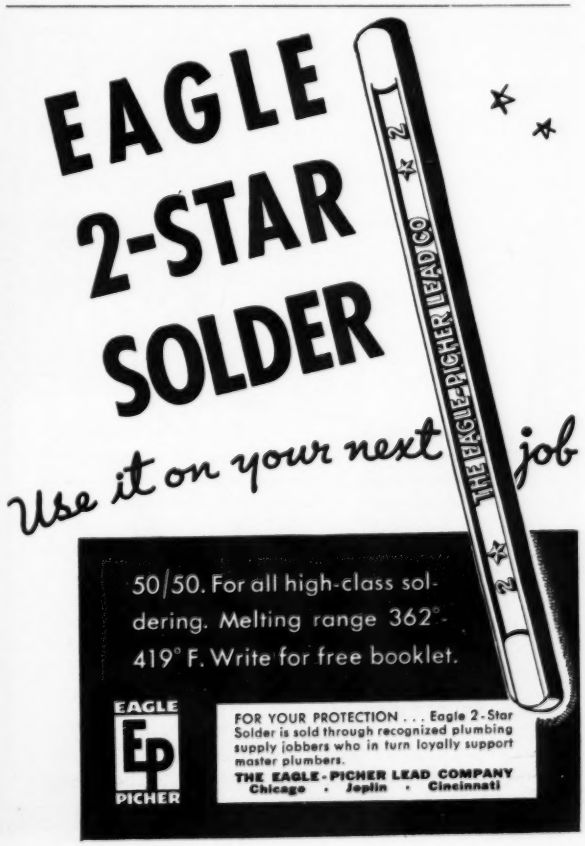
Fifty-two pages are contained in the recently issued, spirally bound catalog from Abingdon Sanitary Manufacturing Co., Abingdon, Ill. Color plates of bathroom groups are shown and many illustrations picture the company's fixtures. Fittings and dimensions are given for each of the fixtures and one page of cross-sectional drawings of closet bowls is presented. Closet tank fittings, lavatory fittings and accessories are given a prominent place in the booklet. It is bound in a separate cellulose-covered paper cover.

Small Boiler

The National Radiator Co., Johnstown, Pa., has issued an eight-page catalog descriptive of its small home boiler which was announced recently. The new design and the new features of this unit are particularly stressed; cross-sectional photographs show the unit's construction. Other photos show detailed views of various parts of the boiler. Drawings and tables supplement the description.

Threading Equipment

A new catalog, illustrating and describing the manufacturer's line of threading tools and machines has just been issued by The Oster Manufacturing Co., Cleveland, Ohio. This new booklet contains time studies,


EAGLE
2-STAR
SOLDER
Use it on your next job
THE EAGLE-PICHER LEAD CO
50/50. For all high-class soldering. Melting range 362°-419° F. Write for free booklet.
EAGLE
EP
PICHER
FOR YOUR PROTECTION . . . Eagle 2-Star Solder is sold through recognized plumbing supply jobbers who in turn loyally support master plumbers.
THE EAGLE-PICHER LEAD COMPANY
Chicago · Joplin · Cincinnati

THREE OUTSTANDING FEATURES

INCREASED EFFICIENCY
LOWER MAINTENANCE COST
GREATER SATISFACTION

The design and construction of every MILVACO Product reflects years of research, engineering skill and precision methods of manufacture—insuring higher operating efficiency.

Superior quality at no premium in price—years of uninterrupted service. MILVACO service records are proof of longer, more economical operation of MILVACO Installations. No matter how exacting the demands—MILVACO Products more than equal the service requirements for which they are recommended.

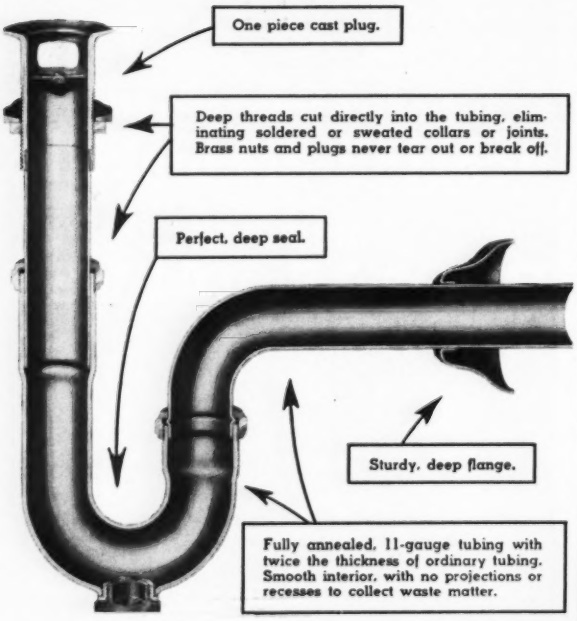
Our representative in your territory will be glad to cooperate and assist you.

Sold by leading recognized wholesalers in all principal cities.

Send for condensed catalogs.

MILWAUKEE VALVE CO.
MILWAUKEE WISCONSIN
Manufacturers of
MILVACO Heating Specialties and APPROVED Bronze Valves

NO TROUBLE WITH MUELLER TRAPS


One piece cast plug.
Deep threads cut directly into the tubing, eliminating soldered or sweated collars or joints. Brass nuts and plugs never tear out or break off.
Perfect, deep seal.
Sturdy, deep flange.
Fully annealed, 11-gauge tubing with twice the thickness of ordinary tubing. Smooth interior, with no projections or recesses to collect waste matter.

Mueller Traps are truly trouble-free because they are made from 11-gauge tubing having twice to three times the thickness of 20 and 17-gauge tubing which is ordinarily used for making traps. Straight pieces of red brass tubing are placed in a special machine which bends them with wide sweeping curves that will flush thoroughly clean every time. One of the bends is curved into a deep seal to prevent odors from coming up through the trap and the threads are deep machine cut directly into the tubing so that the joints are threaded together, giving the strongest possible connection without seams or solder to loosen or come apart.

Install Mueller Traps—the traps that meet every requirement of the most exacting plumber. Ask your jobber for full details or write for attractive folder that shows the many types available with full details.

MUELLER CO.
DECATUR, ILL.
VITAL SPOT PRODUCTS

threading speeds, specifications and other information described as valuable to the mechanical man. Extra large illustrations make it possible to study every detail of the machines described.

Boiler Literature

Kewanee Boiler Corp., Kewanee, Ill., has just issued a four-page folder describing its steel-welded, two-pass round boiler. The folder is printed in three colors and presents one view of the boiler with its modern jacket and another without the jacket. Dimensioned line drawings and tables of ratings and capacities are also given. Outstanding features of the unit are detailed and efficiency curves are presented. Features of the domestic hot water heater are explained.

Quieting Ducts

A new acoustic lining for air conditioning and forced warm air ducts is described in a four-page folder issued recently by Johns-Manville, 22 East 40 St., New York City. Two of the illustrations show the acoustic lining being applied at the time the duct is installed. A formula for determining the amount of lining needed for a given duct is also presented in the literature. Outstanding properties of the lining are explained.

Zoned Heat

A four-page folder just issued by H. A. Thrush & Co., Peru, Ind., is devoted to descriptions of zoned heat

HERE'S NEWS *that means* **GREATER** *sewer work* **PROFITS** *for* **YOU!**

FLEXIBLE SEWER RODS NOW OFFERED NATIONALLY

After 5 years of successful use on the West coast, during which over 3000 coast plumbers have become enthusiastic users, FLEXIBLE Sewer Rod Equipment is now being offered to plumbers nationally.

60% to 80% MORE PROFIT!

The unusual success of FLEXIBLES on the coast (many plumbers reporting 60% to 80% more profit on sewer work) forecasts a ready acceptance in the national market.

TO EVERY PLUMBER who takes advantage of it, this announcement is going to mean many extra profit dollars. You see, unlike ordinary equipment, FLEXIBLE Sewer Rods will make it possible for you to remove the most stubborn stoppages with a minimum of effort and in a minimum of time. In labor and time savings alone, FLEXIBLES soon pay their way. You'll find them your one effective answer to every pipe and sewer cleaning problem. Why not contact your wholesaler today or write us direct for the complete FLEXIBLE story.

FLEXIBLE Sewer Rods are made of fine spring steel, providing maximum flexibility. In the complete set for plumbers a wide range of tools is provided . . . including 5 different type heads, each especially designed to perform a particular function.

Flexible STEEL

FLEXIBLE SEWER-ROD EQUIPMENT CO.
622 EAST FOURTH ST., LOS ANGELES, CALIF.

installations made with the company's equipment. Photographs are used extensively to show the equipment as it is installed and descriptions of engineering difficulties overcome in the installations are complete. The company's equipment is also described. The folder measures 8½ by 11 in. and is printed in two colors.

Pumps and Water Systems

Four new catalogs have just been issued by The Duro Company, Dayton, Ohio. These bulletins cover the company's ejector pumps, deep well turbine pumps, shallow well turbine pumps and water systems, and the line of pumps and water systems for deep or shallow wells. Each of these pieces of literature is well illustrated and is printed in two colors. Tables of capacities and complete descriptions feature the catalogs. They measure 8½ by 11 in. and contain a varying number of pages from two to twelve,

Training Men

"A Camera Visit to the Refrigeration and Air Conditioning Institute" has just been issued by Industrial Training Corp., Chicago. Scenes of class rooms, shop methods, heating work in the school, work on oil burners, gas burners, and coal stokers are pictured. Work in the air conditioning, commercial refrigeration and quick freezing rooms, examples of manual skill, and of the facilities available at the Institute are all shown by means of photographs. The booklet contains 32 pages, and, besides the photographs, gives a brief description of the aims of the Institute.

EAGLE
wiping
solder

A perfect joint every time... it sets slowly.

WRITE FOR FREE BOOKLET

FOR YOUR PROTECTION...
Eagle Wiping Solder is sold through recognized plumbing supply jobbers who in turn loyally support master plumbers.

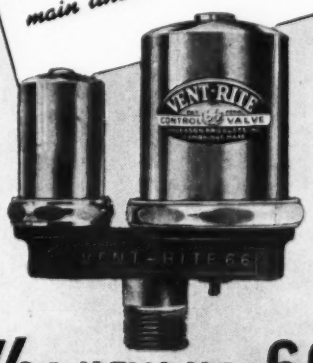
EAGLE EP PICHER
THE EAGLE-PICHER LEAD COMPANY
CHICAGO • JOPLIN • CINCINNATI

NEWS ON ONE-PIPE STEAM HEATING

VENT-RITE scores again

1. Justified Greater Profits
2. No Electrical Connection
3. EASY TO INSTALL

The No. 66 Control Valve is simply and easily installed by screwing it into the place of a main line vent.



The NEW NO. 66
VENT-RITE
control valve

Together with Vent-Rite Valves, the new No. 66 completes the Vent-Vac Method of Steam Control, combining the most desirable and practical features of open atmospheric and vacuum systems.

In addition to replacing a main vent, and returning the system to atmospheric pressure at the beginning of each firing period, the new No. 66 limits the creation of vacuum to 10", for beyond that point the relatively low B.T.U. content of the vapor (due to increased volume) makes its transfer from boiler to radiators uneconomical.

ANDERSON PRODUCTS INCORPORATED
17 TUDOR STREET, CAMBRIDGE, MASSACHUSETTS

"K-CO means QUALITY"

THIS MARK → guarantees a product made of high grade red brass . . . carefully machined and with plugs accurately ground, properly lubricated and rigidly tested before leaving the factory!

Send for Catalog "F" describing the complete K-CO line.

G-207—Solid Lever Standard Gas Stop

G-203—Tee Head Standard Gas Stop

GU-208—Solid Lever Standard Gas Stop with Female Union

G-215—Lock Wing Standard Gas Stop

KITSON COMPANY
2409-15 Westmoreland St., Philadelphia, Pa.
Manufacturers of Kitson Safety Devices (Lovekin Patents) for Domestic Water Heaters . . . Quality Brass Goods for Gas, Water and All Plumbing Uses.

Cleanable Water Heater

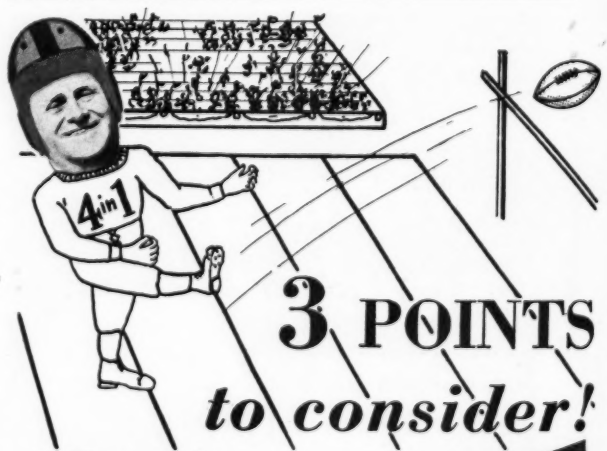
Vapor Car Heating Co., Inc., Railway Exchange Bldg., Chicago has just issued several pieces of literature dealing with its cleanable water heater. Among the pieces is a four-page, two-color folder which lists the outstanding features and advantages of the heater, including construction and accessibility. The other literature gives tables of capacities and lists reasons for the heater's trouble-free operation. Six separate pieces of literature are included in the group.

Air Conditioners

Direct-fired air conditioners are described in a 12-page booklet just issued by Fitzgibbons Boiler Co., 101 Park Ave., New York City. The booklet is completely illustrated and contains diagrams showing the path of travel of heated and conditioned air in one of the company's units. A complete description of the conditioner's functions is presented and tables of capacities and ratings are included. The booklet is printed in two colors and measures 8½ by 11 in.

Smoke Elimination

"Manual of Ordinances and Requirements in the Interest of Air Pollution, Smoke Elimination, Fuel Combustion," is the title of the most recent issue of that publication by the Smoke Prevention Association, City Hall Square Bldg., Chicago. Proceedings of the Association, methods of determining smoke density, operation of stokers, air pollution tests, and many other kindred and related subjects are covered in the book. The book sells for 50 cents.



3 POINTS to consider!

1. Who makes it?
2. How well is it made?
3. How easily is it installed?

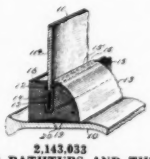
Those are just 3 points which merit the consideration of the plumber in his selection of roof flashings. Made by flashing experts with long years of experience, all OATEY Flashings provide the utmost in lasting flashing satisfaction. These men understand your problems best and they manufacture flashings that meet *all* of your requirements . . . flashings that may be installed as easily on flat roofs as on pitched roofs. Your customers will never have a "kick" coming when you install OATEY Flashings. Ask your wholesaler.

OATEY also makes all sizes and styles of flashings in copper, lead and galvanized.

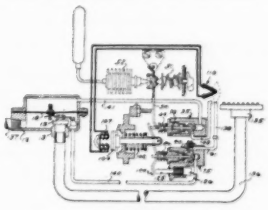
THE L. R. OATEY CO.
10230 Berea Road, Cleveland, Ohio

4 in 1

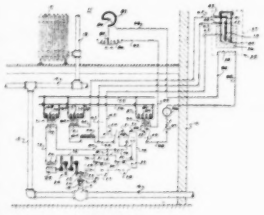
NEWS *of* PATENTS
Plumbing and Heating



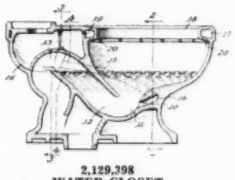
2,143,033
JOINT FOR BATHTUBS AND THE LIKE



2,118,886
FUEL BURNER CONTROL SYSTEM



2,129,272
HEATING SYSTEM



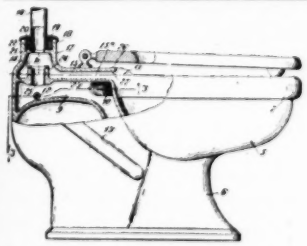
2,129,398
WATER CLOSET

2,118,886. Fuel Burner Control System. Frederick D. Joesting, Minneapolis, Minn., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a corporation of Delaware.

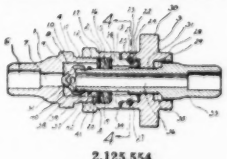
2,129,272. Heating System. William J. Hajek, Brookline, Mass., assignor to Minneapolis-Honeywell Regulator Company, Minneapolis, Minn., a corporation of Delaware.

2,129,398. Water Closet. James R. Beam, New Castle, Pa., assignor to Universal Sanitary Mfg. Co., New Castle, Pa., a corporation of Pennsylvania.

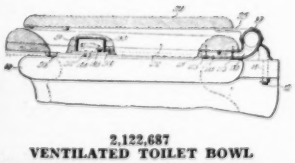
2,143,033. Joint for Bathtubs and the Like. George Sakier, New York, N. Y., assignor to The Accessories Company, Inc., New York, N. Y., a corporation of Delaware.



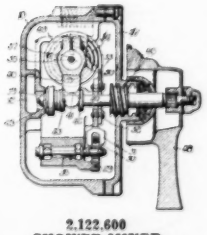
2,122,834
SIPHON BREAKING WATER CLOSET



2,125,554
LINE VALVE



2,122,687
VENTILATED TOILET BOWL



2,122,600
SHOWER MIXER

2,122,834. Siphon Breaking Water Closet. Robert A. Brooks, Chicago, Ill., assignor to Isabell B. Kerr, Chicago, Ill.

2,125,554. Line Valve. George E. Franck, Berwyn, Ill., assignor to The Imperial Brass Mfg. Company, Chicago, Ill.

2,122,687. Ventilated Toilet Bowl. William Herrmann, Chicago, Ill.

2,122,600. Shower Mixer. Howard J. Young, River Forest, Ill., assignor to The Powers Regulator Co., Chicago, Ill., a corporation of Illinois.

Hank Sez—
Burnham has a F. H. A. that's come to stay

The new Small House Junior Yello-Jacket Boiler is shipped all set up ready to connect the pipes, and put on the jacket.

Don't you sometimes get woozey trying to keep all the alphabet doings of the government straight?
It's only here lately I got it figured out that F. H. A. meant the Federal Housing Act.
Maybe I'm kinder dumb and slow.

Well anyway Burnham had a F. H. A. long before the government.
But it meant something different.
Burnham's F. H. A. means "Forever Hustling Along."

Yes, sez you, but what does that mean?
It means, that if you wuz to set down in separate columns the new things that all the heating concerns has brought out in say the last 10 years; and then compare 'em with Burnham's, you'd haf your eyes opened wide.

Burnham would be so fur in the lead, you couldn't see the others for the dust.
Take Burnham's last F. H. A.—the Junior Yello-Jacket Small House Boiler. No one has one designed just fur small homes and nuthin else. None of 'em has a small boiler of any kind what has a Taco Tankless water heater bilt right inside its insides.

Could tell you a lot more of "Forever Hustling Along", but ain't a goin ter. It would take 'till noon tomorrow and you got work ter do, and I'm goin ter let you do it.

HINTFUL HANK

BURNHAM BOILER CORPORATION
Distributed Through Wholesalers
IRVINGTON, N. Y. ZANESVILLE, OHIO
Export Dept.: 50 Church St., N. Y. City

Burnham Boiler

WM. B. SCAIFE & SONS CO.

Whole generations have come and gone since Scaife began the manufacture of *better-made* products for the plumbing trade. Through the years, mutual regard has strengthened the bonds of friendship . . . Scaife policies of fair dealing, sound design, honest materials and workmanship have faithfully carried on the traditions established by the founders of this business.

Today, in addition to a complete line of Range Boilers, Pneumatic Tanks, Expansion Tanks, Hot Water Storage Tanks, Water Softeners and Filters, Scaife offers to the trade a unique and understanding service summed-up in "THE SCAIFE MAN". Back of THE SCAIFE MAN is the accumulated knowledge and experience of plumbing problems that make "Scaife" a standout name in the industry . . . combined with a willing ability to help you in every possible way. THE SCAIFE MAN'S job is to serve *you* . . . without obligation. We heartily invite you to make use of him at any time!

Descriptive Scaife Bulletins gladly sent on request.

WM. B. SCAIFE & SONS CO.

General Offices, Laboratory and Works — OAKMONT, PA.
(Pittsburgh District)
Representatives in Principal Cities

Public Health—

(Continued from Page 69)

authorities are incorporated in this article on the relation of plumbing and health. Among those whom Domestic Engineering *wishes to thank for their wholehearted cooperation are Wm. C. Groeniger, consulting sanitary engineer, Columbus, Ohio; Arthur E. Gorman, engineer of water purification, Chicago; Dr. A. W. Newitt, director, bureau of epidemiology, Michigan Department of Health, Lansing, Mich.; John H. O'Neill, sanitary engineer, Louisiana Department of Health, New Orleans; B. O. Tilden, Trenton, N. J.*

Auxiliary—

(Continued from Page 77)

looking at the "banner parade" staged by auxiliary members at a recent national convention.

For the facts in this article on women's auxiliaries and their work, we are indebted to the following auxiliary leaderss Mrs. Herbert L. Rose, Jr., Cambridge, Mass.; Mrs. Royal Berg, Minneapolis; Mrs. E. B. Clayton, Denver; Mrs. Mabel B. Doench, Cincinnati; Mrs. E. D. Hornbrook, Kansas City, Mo.; Mrs. Bertha A. Johnson, Champaign, Ill.; Mrs. Lee R. Sheffield, St. Petersburg, Fla.; Mrs. Jessie M. Fanning, Winter Park, Fla. These ladies furnished the foregoing facts. Editorially, we are impelled to add that without the Women's Auxiliary and their charming members, our industry's achievements would have been meagre, future prospects would be less bright.

Codes—

(Continued from Page 100)

a real problem, with the lives of hundreds of thousands of persons at stake. Laws had to be passed to control this flow of vehicles. This was a basic necessity brought about by an increasingly complicated civilization.

Plumbing codes meet just such a basic necessity. When most of the population was rural, when water was drawn by a hand-pump and each family had its own well, when human waste was deposited at a distance from the house instead of in it, naturally there was no recognized need for stringent plumbing codes. But, with the growth of great cities served by a single water system and a single sewerage system, protective regulations became vital. Without modern plumbing great cities as we know them today could not exist; and modern plumbing is regulated plumbing.

Of course smaller communities must have their plumbing codes too, for the difference between small and large cities is merely one of degree. Practically all cities now have water supply and sewerage systems, and homes in both small and large towns have inside plumbing.

When the regulation of modern plumbing and heating is considered in rural areas, it should be remembered that a person can be just as sick with typhoid fever in the country as in the city. Because there may be somewhat less urgency for plumbing codes in sparsely popu-

lated sections, there is a corresponding reduction in attention to the protection of health. This is based upon the human tendency of a strong man to be neglectful, while a sick man will take great care to preserve the remnants of his health.

The status of plumbing regulation definitely was established some sixteen years ago (in 1923 and again in 1928) when the United States Department of Commerce developed a code of minimum requirements for plumbing based on tests conducted by the Bureau of Standards.

Theoretically, an individual should be allowed to neglect his own health, if he should so desire, by permitting an unsafe and insanitary plumbing installation in his home. But, society realizes that disease germs do not make family discriminations. If they are harbored in the home of Mrs. Smith they are not satisfied with that; they go across the street to Mrs. Jones. An outbreak of typhoid may infect a large part of a community from a single carrier. And the original source may be defective plumbing.

Society must guard against occurrences such as this; hence plumbing codes.

If any indictment can be made of plumbing codes it is that they are too few and often too weak. This is not the fault of our industry, for it has consistently suggested changes and improvements as needed or even in anticipation of needs. Many present codes are outmoded in the light of present conditions, developments and inventions. They should be brought up to date. The most energetic exponents of such necessary modernization are members of our industry.

Look for the Arm-and-Hammer

ARMSTRONG BROS.

PIPE WRENCHES

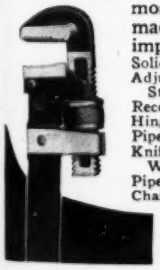
CHAIN TONGS

Jaws are drop forged from special steel, heat treated, hardened, tempered and tested. Handles forged from high carbon steel have both stiffness and "spring."

Flat Link Chains have proven strength—are proof-tested to ⅔ catalog strength (3,600 to 40,000 lbs.). Design improvements: jaws have increased bearing on bar and forged-in chain guides, large steel bolts, drop forged alloy steel shackle.

Better PIPE TOOLS—The most complete line made and each an improved tool.

Solid Dies and Stocks
Adjustable Dies and Stocks
Receding Threaders
Hinged Pipe Vises
Pipe Cutters
Knife Blade Cutter Wheels
Pipe Wrenches
Chain Tongs



ARMSTRONG BROS. TOOL CO.
"The Tool Holder People"
323 North Francisco Ave., Chicago, U. S. A.
Eastern Warehouse and Sales: 199 Lafayette St., New York

CHECK YOUR SKILL HERE!

CAN YOU

Stop joint leaks without putting in a new gasket or disassembling threads?

Make even rusty threads or pitted flanges hold high pressure?

Seal a cracked cylinder or pressure shell without disassembling?

Make stripped threads or nuts hold tightly?

Anchor studs and bolts in old concrete so that they will not come loose?

Fit machine bases and uneven foundations together (to prevent vibration) without straining the base casting?

Tell what iron cement has a 45-year record for doing all these things well?

IF YOU cannot honestly answer "Yes" in every instance, you should have the Smooth-On Handbook, which explains these and many more equally important jobs that may some day fall to your lot. This booklet illustrates and describes about every imaginable repair that need be made to stop or prevent leakage, make loose parts tight, etc. The working diagrams simplify the choice of repair procedure, as well as application of the repair material for permanence, time and labor saving, and economy in maintenance expense. The recommendations are based upon the latest approved engineering practice and represent cumulative 45-year experience by Smooth-On users and enthusiasts all over the world.

This handy little reference work deserves a permanent place in your desk, and should be consulted whenever a repair problem is perplexing. Thorough familiarity with its contents can help you to avoid much physical effort, unnecessary worry, and in emergencies much nasty overtime work, especially if you keep a little Smooth-On where instantly available when needed.

Get the Smooth-On Handbook free by returning the coupon, and buy Smooth-On in 1 or 5-lb. can or larger keg from your supply house or if necessary, direct from us.

SMOOTH-ON MFG. CO., Dept. 12
570 Communipaw Ave., Jersey City, N.J.

Please send SMOOTH-ON HANDBOOK.

Name .....

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Do it with **SMOOTH-ON**

3 REASONS WHY *The* TRY-ME COMBINATION WILL MEET *Your* HOT WATER HEATING REQUIREMENTS

EACH of the 3 units which make up the TRY-ME Hot Water Heating Combination presents one big reason for its success. For each unit has an established reputation with the trade for efficiently performing its specific function. Combine this fact with the characteristic TRY-ME reputation for high quality and trouble-free performance and you will see why the TRY-ME Combination will successfully meet *your* hot water heating requirements. See your wholesaler.

1 THE TRY-ME PRESSURE RELIEF VALVE

Meets the approval of safety authorities everywhere. Has extra large seat area . . . a wide range; up to 225 lbs. per square inch . . . special lubricated seat which eliminates sticking.

2 THE TRY-ME PRESSURE REDUCER

Covers any pressure range from 200 down to 4 lbs. . . . and you can set it yourself. Important features include: leak-proof plunger diaphragm . . . wide unrestricted seat opening . . . and others.

3 THE TRY-ME STRAINER

Special features include: a straining area that is larger than inlet or outlet . . . screen that can be easily renewed . . . and simple cleaning facilities.

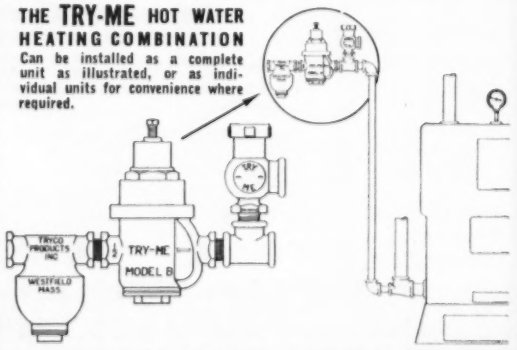
Ask Your Wholesaler about TRY-ME Products TODAY.

TRYCO PRODUCTS, INC. WESTFIELD, MASS.

TRY-ME

THE TRY-ME HOT WATER HEATING COMBINATION

Can be installed as a complete unit as illustrated, or as individual units for convenience where required.



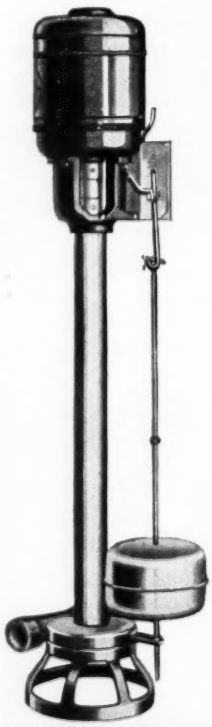
Many plumbing codes are inadequately enforced as a result of poorly conceived municipal and state economy programs. Most of the demands for better enforcement and additional inspectors arise from the ranks of our own industry—not from the general public which stands to benefit most.

Many codes regulate effectively the installations made by master plumbers (and master plumbers welcome such supervision), but leave loopholes through which unqualified handymen can wriggle to make installations which in all truth may menace the health of the community. In many localities the plumbing and heating industry is advocating the adoption of the so-called sticker ordinances to meet this problem.

The power and duty to enact plumbing codes resides originally in the state government, which delegates this power and duty to city governments. The state, of course, always retains power to impose minimum requirements for the whole state and for communities of various sizes in it. The city enforces the plumbing code under the police power given it—the power to protect public health and safety by all reasonable means. In many cases the codes are drawn in the form of regulations of local or state boards of health.

The plumbing inspector's office sometimes is a part of the health department, sometimes is associated with the city building department.

One of the earliest plumbing codes in the United States was enacted in Washington, D. C. (1881). Other early codes were in effect in Worcester, Mass. (1885); Wilmington, Del. (1886); Oakland, Calif, (1889); St. Louis (1889); Hudson, N. Y. (1892); Newton, Mass.



Are you primed for

SUMP PUMP Profits?

Fall rains bring wet cellars . . . backing up of sewers . . . flooded basements . . . and *a big upturn in sump pump sales.* If you have not done so already, investigate

TRIANGLE RATHBUN

and you will see why dealers have been making good profits since 1925 selling this pioneer automatic electric cellar drainer. Here is the sump pump that introduced the full automatic resetting protection that prevents burnouts and starts pump automatically as soon as temporary obstruction clears.

Available for sumps of various depths in all-bronze, non-corrosive models as low as

$39.50 (list)

Built for trouble-free, dependable performance and long life . . . always ready for any emergency. Complete pump guaranteed one year. *See your wholesaler today or write for full details.* Get primed for sump pump profits!

TRIANGLE MFG. CO., 4049 Beaufait, Detroit, Mich.

Manufacturers of

CASCADE TURBINE WATER SYSTEMS

(1892); Lockport, N. Y. (1893); Minneapolis (1893). Other cities had early regulations regarding plumbing, but they were not called codes and in many cases they were but fragmentary rules.

We are indebted particularly to Paul E. Kurzenknabe, plumbing inspector, Harrisburg, Pa.; to L. P. Sorensen, plumbing inspector of Alliance, Ohio, and to Wm. C. Groeniger, Columbus, Ohio, past president of the American Society of Sanitary Engineering, for information presented in this article. Many other members of our industry contributed their comments to this discussion.

Established Channels—

(Continued from Page 99)

When Mrs. Jones *now* looks in on the interview between housewife and contractor, she is in a position to understand that the contractor offers not only expert suggestions on materials and installations, but also freedom from worry and unnecessary expenses and a complete follow-through on the job.

It is pertinent to inquire as to the factors within the plumbing and heating industry which make practicable such a service to the public. First there is the manufacturer who constitutes the original source of supply for our industry and whose basic function is to produce. Second, there is the wholesaler who performs the vital service of bringing together thousands of individually manufactured products so that they may be available

PENNSYLVANIA'S *Stay* SOLD!

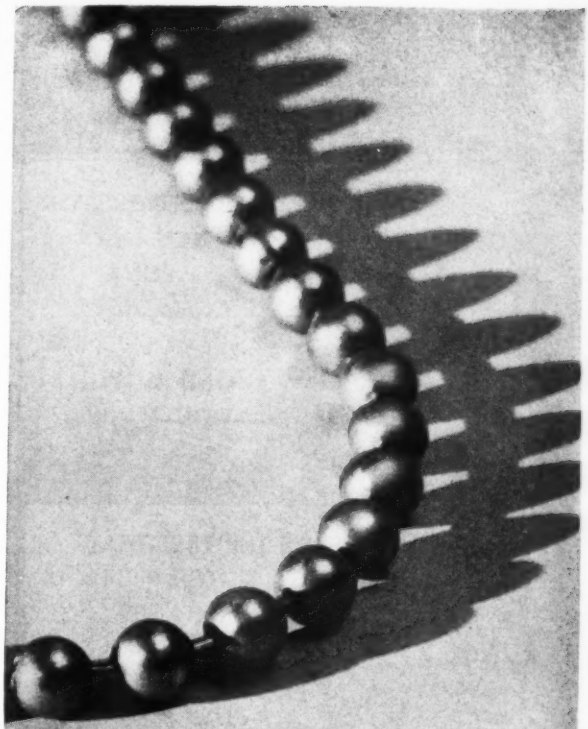
1887--Good Then--1939 Better Now!

And that's ONE GOOD REASON for using PENNSYLVANIA Range Boilers and Pressure Vessels on EVERY job!

Get into the habit of insisting on PENNSYLVANIAS from your jobber—it's a habit well worth developing — will save you many service calls and build good will. PENNSYLVANIAS are a compliment to your good judgment.

Distributed through a nation-wide chain of Jobbers and Wholesalers

PENNSYLVANIA RANGE BOILER CO.
24TH STREET & WASHINGTON AVENUE
PHILADELPHIA, PENNSYLVANIA



USE
BEAD CHAIN
FOR PLUMBING
ESTABLISHED 1914
Trade Mark Reg. U.S. Pat. Off.

Watch for broken, missing or tarnished chain on lavatories, tubs and other fixtures. Replace it with new BEAD CHAIN*assemblies, for profit to you and satisfaction to your customers. And, where salt water or chemicals tarnish other metals rapidly there is BEAD CHAIN* of Monel metal. From your jobbers.

BEAD CHAIN*

THE BEAD CHAIN MANUFACTURING CO.
*Reg. U. S. Pat. Off. 2 Mt. Grove St., Bridgeport, Conn.

Listen to Johnny WRENCH
AND WIN NEW CUSTOMERS!

"WHEN CUSTOMERS ASK 'WHAT CLEANSER DO YOU RECOMMEND?' ..PLAY SAFE. SAY 'OLD DUTCH.'"
"HERE'S THE TEST THAT PROVES OLD DUTCH PROTECTS SMOOTH SURFACES."

It's easy to prove that Old Dutch Cleanser doesn't scratch. Simply put a little Old Dutch between two pieces of glass and rub them together. You'll neither hear nor feel grinding or grating. For Old Dutch is free from harsh scratchy grit. It's made with Seismotite.

"The Old Dutch 'glass test' convinced me that Old Dutch cleans porcelain and enamel without scratching," said a master plumber recently, "and I find my customers grateful to me for recommending it."

You'll find that your customers appreciate *your* advice to use safe Old Dutch Cleanser and that it is to their interest and yours when you recommend this cleanser that doesn't scratch. The makers of Old Dutch Cleanser invite you to make the simple "glass test" described above and hear with your own ears the difference between safe Old Dutch and harsh gritty cleansers.

regionally and locally in any quantities required by individual needs. Third, there is the contractor-dealer whose responsibility in this efficiently running system is to select, to specify, to merchandise and to coordinate special pieces of equipment to the end that a desired finished effect may be produced for the consuming public.

Manufacturers, wholesalers and contractor-dealers share these functions, as enumerated, because the experience of our industry has shown that the present balance is necessary if all of the services and safeguards the public has come to require and demand, are to be fulfilled.

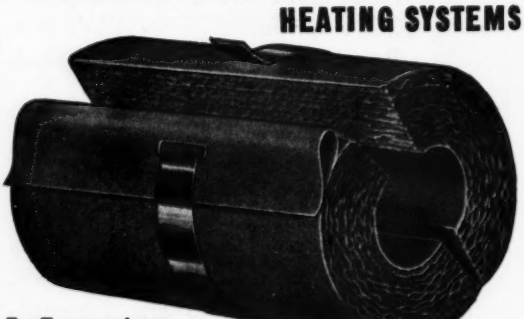
No right thinking person in our industry will maintain that a master plumber should be restrained from manufacturing the bathtubs he installs. No right thinking individual in our industry will hold that a manufacturer should be denied the privilege of selling as he sees fit. No right thinking individual in our industry will question the constitutional right of a wholesaler to make installations if that is the way he wishes to conduct his business.

We do maintain—and the experience of our industry proves it—you may devise and you may adopt any system of distribution your fancy dictates but if all of the factors are to be considered, and if all of the demands imposed upon our industry by a complicated civilization and an exacting consuming public are to be met, the established channels of distribution are most efficient, they are most effective and they are most resultful in serving the purposes for which they were designed.

The results produced both in the past and today, constitute the only measure used in gauging the soundness of

Careycel
PIPE COVERING

For Low Pressure Steam and Hot Water HEATING SYSTEMS



For Temperatures Up to 300° F.

HEAT loss through CAREYCEL is 30% less than through an equal thickness of aircell insulation (according to Mellon Institute tests). Shrinkage is only 1/10th that of aircell. Eliminates heat-wasting cracks at joints—makes a better-looking job—increases efficiency of heating equipment—saves fuel—costs no more than ordinary aircell—assures customer satisfaction. better profits for the heating contractor. Write Dept. 18 for details and specifications.

THE PHILIP CAREY COMPANY • Lockland, Cincinnati, Ohio
Dependable Products Since 1873
BRANCHES IN PRINCIPAL CITIES

the present and established methods of distribution in the plumbing, heating and air conditioning industry.

W. E. McCollum, secretary of the Central Supply Assn.; E. L. Pugh, secretary of the Southern Wholesalers Assn., and Howard Weddington, secretary of the Wholesale Distributors Assn. of Texas furnished some of the viewpoints in this article on distribution in the plumbing and heating industry. The ideas of numerous manufacturers, contractors and consumers also are incorporated in this feature.

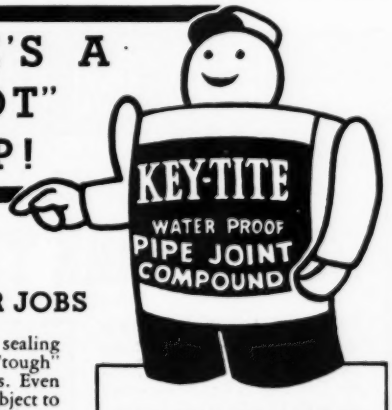
Bureau—

(Continued from Page 91)

from 1934 to the present—been unique, both in its plan of organization and in the manifold publicity activities which are maintained, on a small budget, and which have redounded to the benefit of the industries in obtaining each year free publicity worth approximately half a million dollars at current advertising rates.

For the information in this article DOMESTIC ENGINEERING *is indebted to the following officers and active members in the Bureau: H. F. Beglen, vice president, American Radiator & Standard Sanitary Corp.; John J. Calnan, Chicago; George H. Dickerson, Chicago; R. B. Dickson, president, Kewanee Boiler Corporation, Kewanee, Ill.; Charles K. Foster, vice president, American Radiator & Standard Sanitary Corp.; E. J. Gossett, president, Bell & Gossett Co., Chicago; George E. Hoffman, manager, plumbing and heating department, Crane Co., Chicago; Norman J. Radder, secretary of the Bureau.*

HERE'S A "HOT" TIP!



ON UNIT HEATER JOBS

Key-Tite is the ideal sealing compound for those "tough" unit heater installations. Even the suspended joints, subject to continual vibration, will never leak when you use Key-Tite. Why? Because Key-Tite always retains its full body and plastic qualities.

Carry Key-Tite on all your unit heater jobs this Fall and save TIME...MONEY...WORRY by eliminating those non-chargeable return calls this Winter.

USE KEY-TITE

...on all lines carrying water, low pressure steam, gas, etc. It goes farther, will not freeze the joint and does not settle in the can. It will give you positive leak-proof screw-thread, flange and gasket connections.

Get Key-Tite at your jobbers or write today for a liberal FREE sample.

KEY COMPANY

2661 McCasland Ave. East St. Louis, Ill.

Satisfied Users Are The Best Business Builders

Wessels Boilers Make Satisfied Users

Satisfied users have built your business. Unless you can give satisfaction you cannot hold trade.

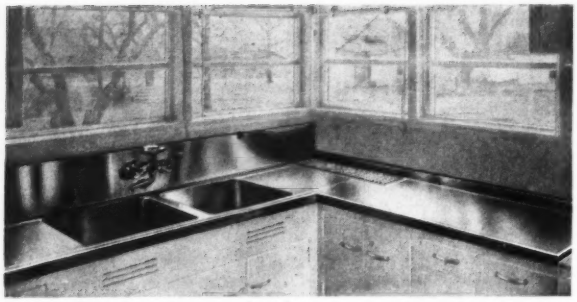
The exceptional quality built into Wessels Range Boilers enables you to give the highest satisfaction in hot water installations. Made of selected heavy gauge sheet steel, Wessels Boilers are formed, welded, riveted, threaded, galvanized and inspected with utmost care—in a modern plant using up-to-date methods.

Wessels' iron clad policy of selling only through recognized plumbing wholesalers to licensed master plumbers protects your profits.

Write for Details

Mention Preferred Jobber

D. D. WESSELS & SONS CO.
1625 EUCLID AVE. EAST
DETROIT, MICHIGAN



The Kitchen Sink of Tomorrow

Can be Installed — *Today*

Yes, Mr. Plumber, You can give your customers a finer, more sanitary sink today at a comparatively lower Cost than you could twenty years ago,—if you install an

ELKAY "Sturdibilt" Cabinet Sink

BUILT OF No. 18 U. S. STANDARD GAUGE
GENUINE 18-8 STAINLESS STEEL

Extra heavy reinforced, round cornered construction, electrically welded throughout, No Visible Seams or Joints, No Overlapping Flanges—these are just a few of the many advanced features which make ELKAY Sinks the last word in modern Kitchen equipment.

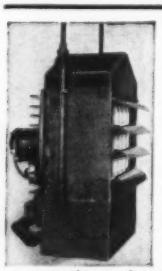
FREE KITCHEN PLANNING SERVICE TO HELP YOU MAKE MORE SALES

Take advantage of our FREE Kitchen Planning Service and write today for literature DE-1039 giving full details.

ELKAY MANUFACTURING CO.

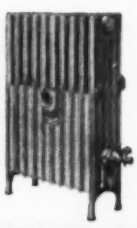
4704-14 Arthington St. : : : : : Chicago, Ill.

ELKAY Products are distributed through recognized Plumbing Wholesalers.



TWO WAYS TO BETTER HEAT
WITHOUT A CENTRAL HEATING PLANT

The Pittsburgh Unit Heater is fully automatic, produces healthful heating over large areas. Almost any commercial or industrial building is a perfect prospect. Automatic Gas Steam Radiators are ideal heaters for churches, schools, homes and similar buildings. Learn more about the advantages of these heaters. Write for new illustrated literature.



AUTOMATIC *Gas Steam* RADIATOR CO.

431 BRUSHTON AVENUE PITTSBURGH, PA.

Apprentices—

(Continued from Page 65)

quired of a first-class mechanic. If he does not have these requirements, he is dismissed.

The whole purpose of the program is to make certain that the public will be well served by journeymen plumbers and steamfitters who are adequate to the responsibilities they must assume.

The above discussion on apprenticeship has been contributed to DOMESTIC ENGINEERING *for its 50th Anniversary issue by the following: Maurice M. Hanson, Federal Committee on Apprenticeship; William V. Hoier, Chicago, chairman of apprenticeship committee of Heating, Piping and Air Conditioning Contractors National Assn.; Arthur W. Kelley, Cincinnati, member of the Heating, Piping and Air Conditioning Contractors National Assn. apprenticeship committee; William F. Patterson, chief of apprenticeship, U. S. Department of Labor; J. C. Wright, assistant commissioner for vocational education, U. S. Office of Education.*

Parallels—

(Continued from Page 73)

1936

Business recuperation continued. A Texas congressman, Wright Patman, stepped into the national spotlight with legislation that affected the merchandising structure of all industry. The Federal Government began a plumbing survey of all its buildings in Detroit

FAMOUS

as its name...

HOTEL MARK TWAIN

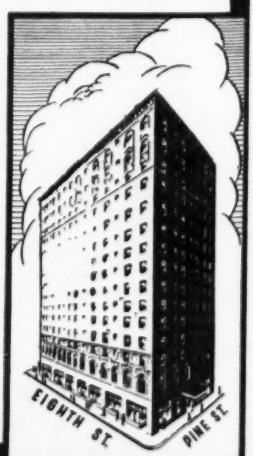
Travelers acclaim the fine food in the two modern restaurants – the Steamboat Cabin Coffee Shop and the Old English Tap Room – they praise the friendly atmosphere and fine service – and they never forget the modern rooms and the IDEAL LOCATION of the Mark Twain.

300 ROOMS

from $2

T. V. LORAN, Mgr.

ST. LOUIS



ONE OF THE ALBERT PICK HOTELS

and New York City. The Social Security Act did much to complicate bookkeeping.

1937

The plumbing and heating industry felt the first direct effects of the Robinson-Patman Act, but was fully prepared through the publicity and information on the Act given by DOMESTIC ENGINEERING. Increasing popularity of house trailers raised an additional problem in municipal sanitation which plumbing and heating men helped correct by amending codes. Attacks were made on high building costs and shown to be wrong by our industry where values were up and prices down. Japan ordered public baths restricted on account of war. DOMESTIC ENGINEERING's Smash Old Fixtures campaign was attracting attention and support throughout the industry. Entries in the Business Building prize contest were pouring in.

1938

A conference of small business men was called in Washington and the resulting suggestions were heard as far west as California. Leaders in our industry were asked by DOMESTIC ENGINEERING, "What would you tell the President?" *A new FHA sent plumbing and heating sales climbing.* The world tottered on the brink of war when Hitler annexed Czechoslovakia.

1939

There was an increase in popularity in sticker ordinances brought about through an increased apppreciation of the inseparable connection between plumbing and public health. War was declared in Europe.

Values and Prices—

(Continued from Page 97)

proof, but one that is sanitary and easy to clean. Rounded corners and electrically welded construction have eliminated all visible seams. And with all these refinements and improvements the sink of today costs from 5 per cent to 15 per cent less than did its forerunner of 1920.

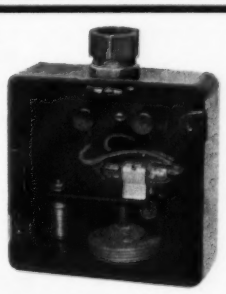
The information and photographs presented in this survey of modern products and prices as compared with former years has been made available through the helpful cooperation of the following manufacturers whose products have been described. Space limitations have prevented the use of all the information available. Prod-

WHY CIRCULATE COLD WATER?

★ ★ ★ ★ ★

THE TWO-IN-ONE AUTOMATIC CONTROL

For low and high temperatures permits circulation of hot water only.



Manufactured by STRAP-ON-TYPE

CHARLES CAMILLERI

2149 FOURTH STREET DETROIT, MICHIGAN

TELEPHONE CLIFFORD 2724

Only **HOTSTREAM** GIVES YOU *Insulated* TANK HEATERS *with* *FLASH* LIGHTING

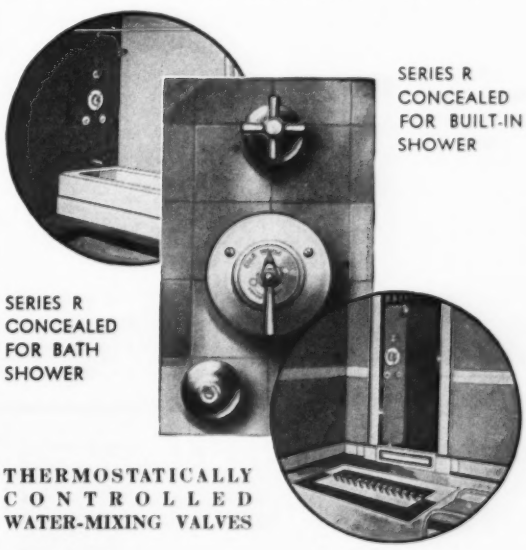
There isn't another water heater like the Hotstream Modernistic. It was built to give you a competitive edge over all other tank heaters...and best of all it costs no more. Think of that?

The exclusive Hotstream advantages will be found in our new No. 39 illustrated catalog. Do you have a copy?

THE HOTSTREAM HEATER CO.

8007 GRAND AVE. CLEVELAND, OHIO

For SAFETY *in the home* SHOWER



SERIES R CONCEALED FOR BUILT-IN SHOWER

SERIES R CONCEALED FOR BATH SHOWER

THERMOSTATICALLY CONTROLLED WATER-MIXING VALVES

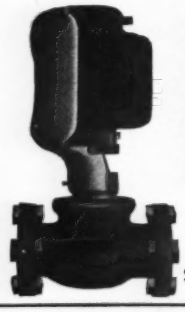
LEONARD VALVES

MANUFACTURED BY LEONARD VALVE CO.

1360 Elmwood Avenue, Cranston, R. I.

Leonard products are distributed through recognized plumbing wholesalers.

The STANDARD
Water Circulator



is designed to meet every requirement for forced circulation in hot water heating systems. Its outstanding features are—sturdy, compact design and construction, life-time lubrication—absolutely leak-proof, quiet and efficient with motor cradled in live rubber eliminating noise and friction, motor automatically protected from burning out against unusual strain or load, can be mounted in any position and at any angle with the adjustment of one small set screw. We also manufacture the Standard Sump Pump—a unit worthy of your consideration.

Write for further details

A few territories still open for distributors

If you want the Best

BUY STANDARD

STANDARD CIRCULATOR COMPANY
6th and Cayuga Sts., Philadelphia, Pa.

KEEP FLASHING JOBS
Ahead of Schedule!

Place them flat or on any angle up to 45°, yet SIMPLEX Adjustable Flashings fit just right. No special positions are required. Easy-to-apply, time-cutting and labor-saving features keep flashing jobs ahead of schedule. SIMPLEX Adjustable Flashings are obtainable in 28 gauge galvanized iron, 14 ounce cold rolled copper or 2½ and 3 lb. sheet lead. If you are cost conscious SIMPLEX Adjustable Flashings should have an instant appeal to you. With this ONE line you can meet all roof and code requirements. When ordering flashings from your wholesaler specify SIMPLEX Adjustable Flashings and notice the big difference.

SIMPLEX MFG. CO.
198-206 N. MAIN STREET
FOND DU LAC WISCONSIN

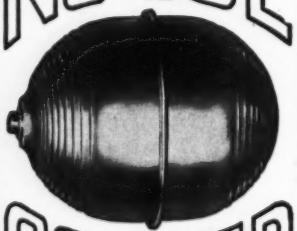
★QUALITY
A full size float of superior quality for dependable service over a long period.

★RESULT
A demand beyond that of other floats for the purpose, with consequent profitable sales opportunities for its dealers.

(Order from your wholesaler)

The
AYLING & REICHERT
Co.
3047 N. ERIE ST.
TOLEDO, OHIO

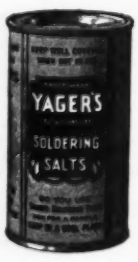
★NO-SOL



COPPER
FLOATS

IT'S YOUR *Gain*

You can do a bang up job on all types of soldering jobs with YAGER'S Soldering Salts. Because YAGER'S aids solder to flow quicker and easier, perfect joints can be made in less time with less labor and solder. Fumes, acid or corrosion are eliminated. YAGER'S Soldering Salts is available in convenient ½, 1, 5, 25 and 50 lb. cans at your wholesaler. Order a supply today. You have nothing to lose and everything to gain.



ALEX. R. BENSON CO., Inc., Hudson, N. Y.

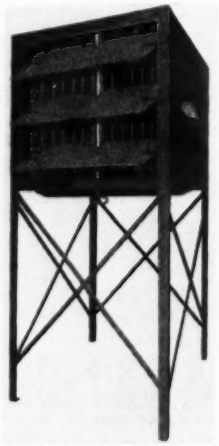
List of distributors in McRae's Blue Book. Sales agency for Canada: CANADIAN GENERAL ELECTRIC CO., Toronto, Montreal

ucts shown were selected because of their representative character and because they demonstrate conclusively that plumbing and heating and air conditioning values are up and prices are down.

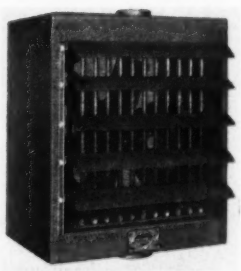
Autovent Fan & Blower Co.
The Barber Gas Burner Co.
Beaver Pipe Tools, Inc.
Crane Co.
The Dayton Pump & Mfg. Co.
The Dole Valve Co.
The Duro Company
Edison General Electric Appliance Company, Inc.
Elkay Manufacturing Co.
Fitzgibbons Boiler Company
Goulds Pumps, Inc.
Kewanee Boiler Corp.
McDonnell & Miller
Milwaukee Valve Co.
Minneapolis-Honeywell Regulator Co.
Penberthy Injector Co.
San-Equip, Inc.
Speakman Co.
Standard Tank & Seat Co.
H. A. Thrush & Co.
The Toledo Pipe Threading Machine Co.
The Trane Co.
Watts Regulator Co.
The Will-Burt Co.

1929 Unit Heater

Back in the days of the booming stock market this unit heater was being installed for the first time. This particular model was a floor type unit having a capacity of 152,000 B.t.u. at 2 lbs. steam pressure, 60 deg. Fahr. entering air. It was equipped with a ⅕ hp., 1,750 r.p.m. motor and had dimensions of 42 in. in width, 34 in. in height, and was 37 in. deep. The consumer had to pay $142.60 for this unit heater back in 1929.



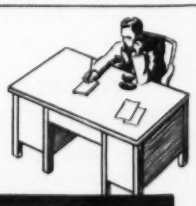
The 1929 floor-type unit heater is shown at the left; the 1939 unit heater is illustrated below



1939 Unit Heater

By way of comparison, this newest model unit heater has a capacity of 151,200 B.t.u. when operating on two pounds steam, 60 deg. Fahr. entering air or 631 sq. ft.

Specify for Satisfaction



KUPFERLE

Yard Hydrants — Wall Hydrants — Street Washers
Fire Hydrants — Plumbing Specialties — Specification Drains

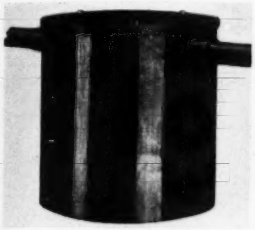
Specification sheets sent on request

JOHN C. KUPFERLE FOUNDRY COMPANY - - ST. LOUIS

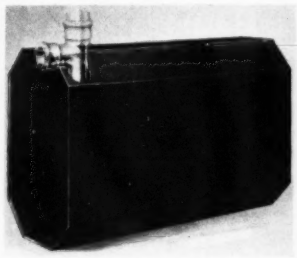
equivalent direct radiation. It is equipped with a 1/6 hp. motor operating at 1,140 r.p.m. with an air capacity of 2,263 c.f.m. The dimensions of the unit are—22 in. by 25¾ in. by 13½ in. It costs the consumer $88.00.

1921 Septic Tank

The 1921 septic tank was a deep, round ,"rust-proofed, water tight, unbreakable," vertical tank made of copper steel. Due to its small capacity it required frequent cleaning and was subject to clogging at the intake baffle. Sewage entered the tank at the side and no provision was made for ventilating or trapping of gases. The price for the 200 gal. size was $48.00.



Left, 1921 Septic Tank



Right, 1939 Septic Tank

1939 Septic Tank

The 1939 model septic tank provides many features formerly available only in the larger tanks. Its horizontal type construction provides a longer flow for sewage within the tank—improving septic action. The sanitary T intake at the top allows sewage to enter the tank more rapidly, tending to keep the baffle clear and reducing clogging at that point. Extending above ground, this intake provides fresh air to the house stack and marks the tank's location, providing access to the intake baffle without digging. It also extends below the liquid level in the tank to seal the line against escaping gases. All seams are electrically welded. This latest model septic tank is a 400 gal. size and sells for $36.00.

1903 Die Machine

Back in 1903 power devices of a small and portable type were not available. One manufacturer therefore came out with its "solid adjustable" die machine. This machine used the split-block die with inserted seg-

ERICO DOUBLE SINK FAUCETS

Deep chromium over solid brass.

ERICO Faucets are designed for shelf type sinks and are adaptable to pantry sinks with the wide flat top backs.

FOR SHELF TYPE SINK

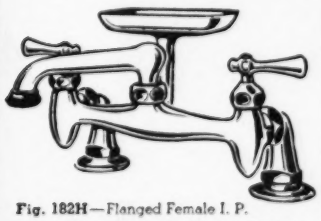


Fig. 182H—Flanged Female I. P.
Fig. 182J — Adjustable Flange Male I. P.

HAYS MFG. CO., ERIE, PA.
MANUFACTURER TO WHOLESALER TO PLUMBER

BALLOFFET

PRECISION DRILLERS SINCE 1870

NOZZLES

Balloffet pioneered individual fire-testing of oil nozzles on customers' burners . . . set the pace in advanced design and precision construction. Each Balloffet Nozzle is unconditionally guaranteed, regardless of size or angle. Moderately priced. Write for Bulletin 439.

BALLOFFET DIES AND NOZZLE CO., Inc.
45 ADAMS STREET GUTTENBERG, N. J.

MAKE YOURSELF A FIST-FULL OF PROFITS!

No Oil Burner in the Industry Can Give You All that REXOIL *Gives!* INVESTIGATE

REIF-REXOIL, Inc.
35 Carroll St. Buffalo, N. Y.
Manufacturers of Rexoil Conversion Burners, Boiler Units, Furnace Units and Direct-Fired Conditioners

REXOIL OIL HEAT

C&L No. 101 PLUMBER'S COMBINATION
BURNS GASOLINE—10-FT. HOSE—GALLON TANK
FOR
SWEAT FITTINGS ON COPPER TUBING

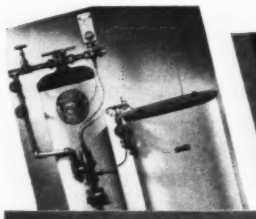
CONVENIENT FOR CLOSE QUARTER
EASY TO HOLD — LIGHT TO HANDLE
LONG BURNING HOURS ON ONE FILLING
MIDGET-FLAME BURNER with ADJUSTABLE FLAME CONTROL
FROM A SMALL POINTED BLUE FLAME—TO 5" LONG WHEN OPENED WIDE
CLAYTON & LAMBERT MFG. CO.
DETROIT, MICH.

• WARNOCK •
Triple Wear Wrenches

The Warnock wrench is easy to adjust. The strap is arranged in such a way that it can be drawn absolutely tight in *one* movement. Notice, too, that this strap is triple folded at the point of greatest strain.

For chrome, brass and nickel plated pipe

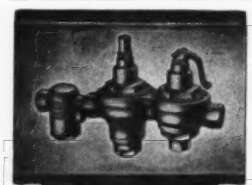
WARNOCK MFG. CO., Worcester, Mass.



The RIGHT SLANT ON CONDITIONED WATER BUSINESS

There are many angles to be considered in choosing a line of water treatment equipment. To get the *right* slant, be sure the line of your choice is (1) *complete;* to fit, satisfactorily, every need; (2) dependable in performance; (3) priced for *every* budget; (4) built by a *reputable* manufacturer; (5) sold only through *legitimate* channels. The products of the H. L. G. Company represent one line that meets *all* these requirements. Get further details.

H.L.G. COMPANY, KALAMAZOO, MICH.



KAINER CIRCULATING •SYSTEMS• For HOT WATER HEATING

Above the well known Kainer Governor Model B-2, below the Kainer Circulator. These major units work coordinately and are fully described in special bulletin form. Have you your copy?

Write for Bulletin No. 66 Today!

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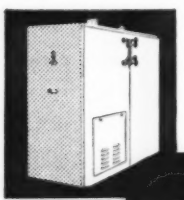

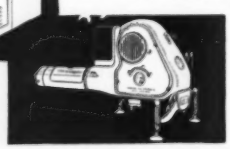

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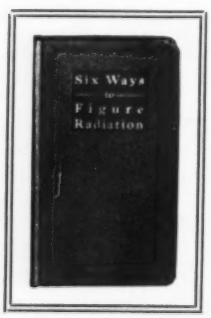

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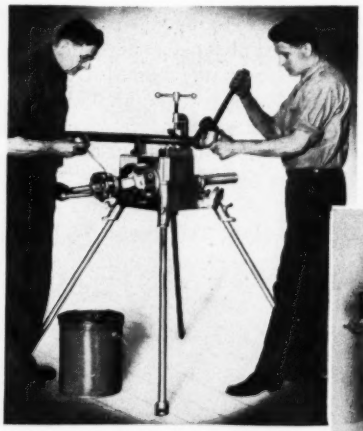
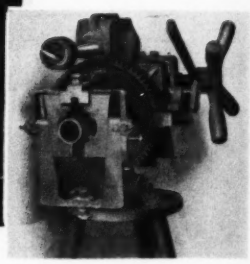
DOMESTIC ENGINEERING CO., 1900 PRAIRIE AVENUE, CHICAGO

ments. They were the wide die type—the receding die had not yet come into being. While this machine does not compare with the power units and machines now available, it was a big step forward because it greatly lessened the amount of work required to thread pipe.





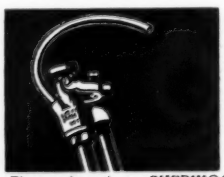
Pictured at the left is the 1939 power unit and below is the 1903 die machine

1939 Power Unit

To meet the need for a powerful, easily portable, low-priced unit, this same manufacturer, early in 1939 brought out the illustrated power unit. This unit converts hand tools into electric pipe machines and will operate any make of hand cutter or threader from ⅛ to 8 in. inclusive; it can be had for either bench or stand use. It is an exceedingly powerful affair, will thread 2-in. pipe with solid full width dies, and will thread up to 8-in. pipe with geared tools and drive shaft in 6 min.

1908 Shallow Well System

This unit is thought by the manufacturer to be the first commercially successful, completely automatic electric motor driven shallow well type domestic water system ever offered. This outstanding 1908 system was reported to have a pumping capacity of 100 gal. per hour and it was driven by a ¼ hp. motor. Another desirable feature was its automatic starting and stopping switch. The ensemble occupied a space of 4 ft. by 2 ft. and stood 2½ ft. high. The cost to the consumer in 1908 was $175.00 f. o. b. the factory.



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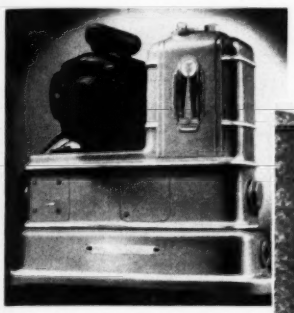
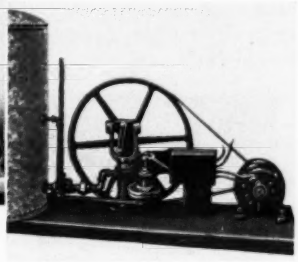
SHERWOOD BALL COCKS

1939 Shallow Well System

This new water system is designed to provide a maximum amount of water from a self-contained, highly efficient pumping machine which incorporates appearance of advanced modern beauty. The shallow well direct pressure type water system which is illustrated has a pumping capacity of 250 to 310 gal. per hour. Its minimum capacity is 250 gal. per hour which automatically steps up to 310 gal. per hour as required. In size alone this unit shows remarkable advance—it occupies a space of 21 by 11 by 18 in. It lists for $51.00.



At the left is the 1939 shallow well system



At the right is the 1908 shallow well system

1913 Thermostat

In 1913 this double-clock thermostat first provided automatic lowering of temperature at night with automatic restoring of daytime temperature "before you arise" in the morning. It was a great improvement for comfort and economy, but two clocks had to be wound and set each day.

Right, 1939 Thermostat

Left, 1913 Thermostat

1939 Thermostat

In 1939, this far better looking instrument combines the thermostat with a high grade electric clock and per-

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● Because it's easier to convince your customers of its numerous advantages, you'll find that it takes **less** effort to net **more** profit with the GLOBE **Sizzler.** Patented one-piece, no-pocket features mean 100% circulation, eliminate the water hammer common with ordinary coils and makeshifts. Plumbers like the GLOBE **Sizzler** because it is installed more quickly, more easily, and because they make more money on each installation. Consult your jobber.

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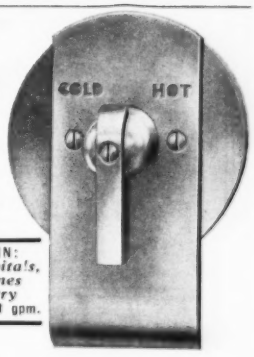

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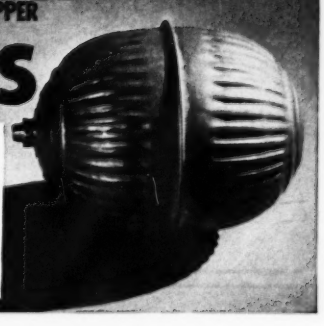

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THEODORE De WITT, President
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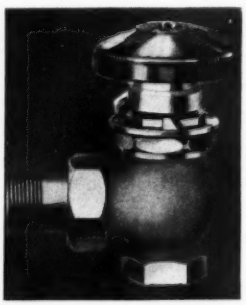
forms the same functions as the 1913 model without attention. The clock operates from the regular lighting current, and once the day and night settings are made it carries out the program day after day.

1914 Radiator Valve

Outmoded today, this packless valve was an outstanding product a quarter of a century ago. At that time it was one of the newest of rising stem, graduated radiator valves. Simple in design, it was made of brass, nickel plated all over and had large Roman numerals. The wheel handle was made of wood, because of its heat insulating qualities; the wood, however, often cracked under the strain imposed by heat and atmospheric conditions. Extreme ornamentation was the vogue in those days and the valve handles were often painted to make them more attractive to the pre-war eye. This particular model radiator valve carried a list price of $5.75 for the one-inch size.



1939 Radiator Valve

1914 Radiator Valve

1939 Radiator Valve

The radiator valve of 1939 has qualities of unexcelled performance—ease of operation, perfect seating, and simplified leak-proof construction. They are regularly furnished with a rough nickel plated body and polished nickel plated trimmings. The illustrated packless graduated radiator valve has a non-heating molded handle with a non-slip grip. It opens full with a two-thirds turn, has a non-rising, independent floating stem and a molded asbestos ring which serves as lower guide and lubricant for stem. A one-piece all-bronze bonnet and a spring retainer housing are further advances made in the valve's design. It is made in all sizes from ½ in. to 2 in. inclusive and is listed at $3.50 for the 1-in. size.

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SALESMEN: EXPERIENCED PLUMBing and heating supplies. Must have following in Manhattan and Bronx territory. State complete qualifications in reply. Address Key 652-D, "DOMESTIC ENGINEERING," 1900 Prairie Avenue, Chicago, Illinois.

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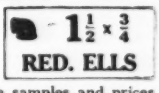

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Index to ADVERTISERS

Abingdon Sanitary Mfg. Company 135
Alabama Pipe Co. 108
Alberene Stone Corp. of Virginia.. 124
Aldrich Company 34
American Brass Co., The 113
American Radiator & Standard Sanitary Corporation 8
Anderson Products Incorporated... 139
Armstrong Bros. Tool Co. 143
Automatic Gas Steam Radiator Co. 148
Autovent Fan & Blower Company 153
Ayling & Reichert Co. 150

Balloffet Dies & Nozzle Co., Inc.... 151
Barber Gas Burner Co., The 107
Bead Chain Manufacturing Co., The 145
Beaton & Cadwell Mfg. Co., The... 19
Bell & Gossett Co. 31
Benson Co., Inc., Alex. R. 150
Bethlehem Steel Company 115
Burnham Boiler Corporation 141

Camilleri, Charles 149
Carey Company, The Philip 146
Chicago Faucet Co. 136
Clayton & Lambert Mfg. Co. 151
Crane Co. 22 and 130
Cudahy Packing Co. 146

Decatur Pump Co. 124
Deming Co., The 27
Detroit Lubricator Company 24
Dole Valve Co. 44

Eagle-Picher Lead Co. 137 and 139
Edison General Electric Appliance Co., Inc. 136
Elkay Manufacturing Co. 148

Fedders Mfg. Co., Inc. 105
Fitzgibbons Boiler Company, Inc.. 16
Flexible Sewer Rod Equipment Co. 138
Ford Motor Company 21
Fretz-Moon Tube Co. 25

Gardner-Denver Company 131
Gardner Mfg. Co. 133
General Electric Co. 6 and 7
Gerstein & Cooper Co. 119
Globe Machinery & Supply Co. 153
Gorman-Rupp Co., The 134
Grinnell Co., Inc. Inside Back Cover

Hays Mfg. Co. 151
H. L. G. Company 152
Hoffman Specialty Co., Inc. 125
Hotel Fort Meigs 154
Hotel Mark Twain 148
Hotels-De Witt Operated 154
Hotstream Heater Co., The 149

Imperial Brass Mfg. Co. 14

Jarecki Mfg. Co. 132
Johns-Manville, Inc. 114
Jones & Laughlin Steel Corporation 37

Kainer & Company 152
Keasbey & Mattison Company 101
Kennedy Valve Mfg. Co., The 127
Kewanee Boiler Corporation 39
Key Company 147
Kitson Company 140
Kohler Co. 41
Kupferle Foundry Co., John C. 150

Lavelle Rubber Co. 122
Leonard Valve Co. 149
Little Mfg. Co., The M. S. 132

Malleable Iron Fittings Co. 152
Marsh Corporation, Jas. P. 134
McDonnell & Miller. Back Cover
Mercoid Corporation, The. 121
Milwaukee Valve Co. 137
Minneapolis-Honeywell Regulator Company 26
Modine Manufacturing Company... 29
Morency-Van Buren Division, Scovill Manufacturing Co. 17
Mueller Co. 138
Myers & Bro. Co., F. E. 28

National Radiator Company, The.. 20
National Tube Company 10
Nelson Corporation, The Herman.. 9
Northern Indiana Brass Co. 35
Nye Tool & Machine Works. 154

Oatey Co., The L. R. 140
Oster Mfg. Co., The 36

Penberthy Injector Company 43
Penn Electric Switch Co. 15
Pennsylvania Range Boiler Co. 145

Reichert Float & Mfg. Co. 153
Reif-Rexoil, Inc. 151
Ridge Tool Co., The 135
Roots-Connersville Blower Corp... 129

San-Equip Inc. 153
Scaife & Sons Co., Wm. B. 142
Schaible Foundry and Brass Works Co. 129
Scovill Manufacturing Co., Morency-Van Buren Division 17
Scovill Manufacturing Co., Waterville Division 17
Sherwood Brass Works. 152
Simplex Mfg. Company 150
Sloan Valve Company 111
Smooth-On Mfg. Co. 143
Speakman Company 30
Standard Circulator Company 150
Standard Tank and Seat Co. 5
Sterling Engineering Co. 158
Sturtevant Company, B. F. 23

Thermo-Mix, Inc. 153
Thrush & Co., H. A. Inside Front Cover
Toledo Pipe Threading Machine Co., The 46
Triangle Mfg. Co. 144
Tryco Products, Inc. 144

Uniflow Mfg. Co. 122
United States Steel Corp. 10
National Tube Company. 10
Export Distributors: United States Steel Products Co. 10
Pacific Coast Distributors: Columbia Steel Co. 10

Vogel Co., Jos. A. 3

Walworth Company 157
Warnock Mfg. Co. 151
Waterville Division of Scovill Manufacturing Co. 17
Watts Regulator Co. 11
Webster & Co., Warren. 12 and 13
Wessels & Sons, Co., D. D. 147
White-Rodgers Electric Co. 38
Williams & Co., J. H. 45
Williams-Wallace Co. 133
Wolverine Brass Works. 18
Worcester Brush & Scraper Co. 131

Youngstown Sheet & Tube Co., The 103

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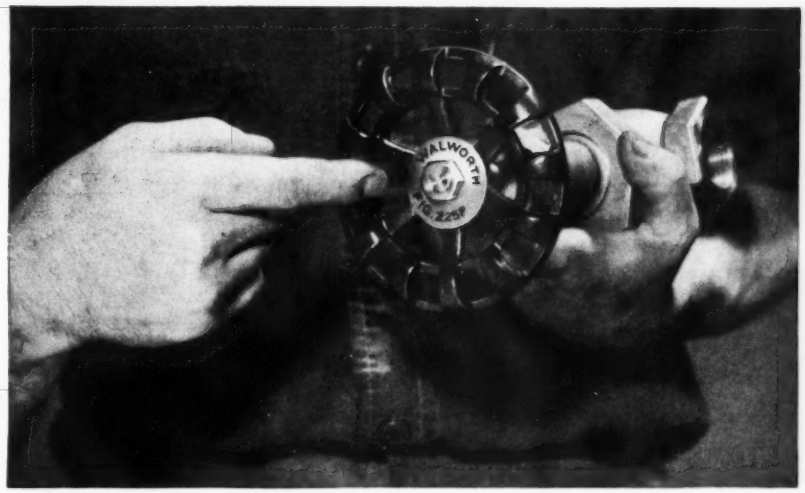

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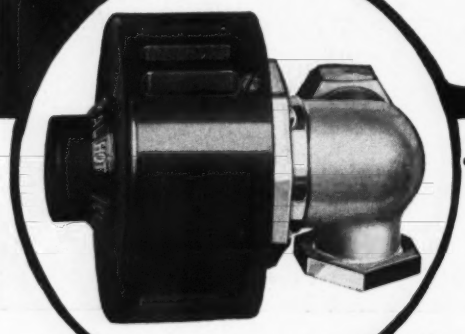

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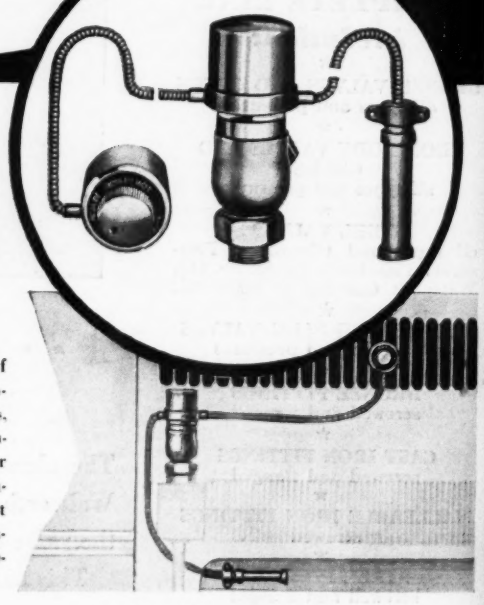
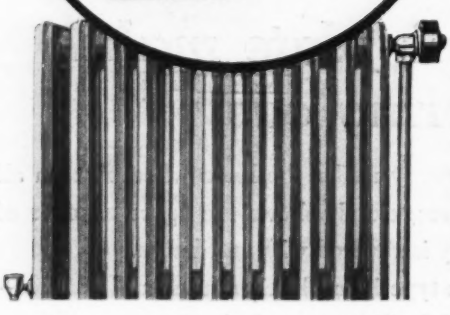
• Thermotrol for Modern Concealed Radiators





Owners and Managers of Large Office Buildings, Hotels, Apartments, Hospitals, Schools, welcome the sensational fuel savings—greater heating comfort and convenience—low original cost and installation cost possible with *Sterling Thermotrols.*

Sterling Thermotrols, completely self-contained, installed on *individual* Steam, Vapor, or Hot Water Radiators, provide accurate Thermostatic Regulation of *individual* Room Temperatures. They prevent overheating, fuel waste, provide more healthful, steady room temperature.

The Thermotrol

- A Room Temperature Control applied to *Individual* Radiators.
- Completely Self-contained.
- Easy to Install.
- Low First Cost.
- Low Installation Cost.
- Requires no Motors, Electrical Connections, or Separate Thermostats.

STERLING ENGINEERING CO. 3738 N. Holton St. MILWAUKEE, WIS.